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For description of
sleeping sickness.

TREATISE

On the following

Chirurgical Subjects.

Chap. I. ON RUPTURES.

II. ON FRACTURES of the Skull.

III. ON FRACTURES Simple and Compound.

IV. ON AMPUTATIONS.

V. On some *African* Distempers.

VI. OF LUXATIONS.

VII. ON the VENEREAL DISEASE.

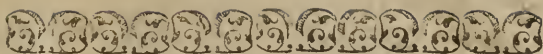
By JOHN ATKINS, Surgeon.

Nemo unquam legendo, fit Artifex.

L O N D O N:

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THE
PREFACE.



HE People of distant Ages, unacquainted with the Means of Luxury, extended their Lives to a great length, and enjoy'd it with Strength, and Exemption from many of the Diseases and Miseries that now perplex and vex Mankind. The Diætetick Part of Medicine (as now in Countries where Physick is not so well known) was chiefly regarded for the Conservation of Health, which at most, stood only improved with the additional Experience of a few Herbs, and an Analogy they found among Diseases; and it would be judicious to continue the same, even now, in those Distempers that are Chronical, where a Regard to Diet and the other Non-Naturals operate better, and with more Certainty, towards the Restoration of Health, than the various

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inexplicable Prescriptions of Physick as it now stands.

Chyrurgery seems the first and only Part exercised in the Cure of Maladies, as may be imagined from the wounding of Abel, and what Eustachius has from Homer's Iliads, speaking of Chyron, Medicaminum repertor: Chyronem aiunt in manu Vulneratum herbariam, excogitasse Medicinam genus etiam Panaces ab eo repertum Centaurium Cognominatur.

Chyron practised Surgery is plain, from those stubborn Ulcers he was so skilful at curing, and which still retain his Name, Chyronia; and as elder Brother taught Physick to Æsculapius (Dolores Ægrotantium Medicare.)

Surgery might also claim the Precedency of Physick, because from one the Benefits are visible, and a Patient we find often irretrievable without it, and the other we see full of Incertainty, and built on precarious Reasoning and Consequence: Indeed Physick, as it relates to Surgery, is neither so ample or mysterious, but that an ordinary Capacity may comprehend and direct in it; it lies, in my Opinion, only in knowing the different Secretions of the Body, whether

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too copious or deficient, and which one or more, either by promoting or stopping, will best serve the End and Intention aimed at, in alleviating Nature from the Pains and Accidents she is incident to in all Chyrurgical Cases, and the timous Use of them, so that separating Opiats, evacuating Medicines, Restrictives and Cardiacks, we seem to have the whole for chyrurgical Use; and perhaps, if we add two or three Specificks, and a Knowledge in the Non-Naturals, we have all of Physick that is useful in most other Cases: But the Sons of *Æsculapius*, by the Degeneracy and Intemperance of Mankind, have taken Occasion to inlarge (rather than improve) the Branch of Prescription to such an enormous Magnitude and Variety, and have so multiplied Diseases and Hypotheses, that the Age of Man is scarce sufficient to make a Disquisition into, and for that Reason it is to be feared oftentimes, ~~It being~~ mere Method; ^{which} can be safe and judicious only, when harmless, and not inhibiting the Operations of Nature.

Chyrurgery as it stands under the four comprehensive Terms of Synthesis, Diæresis, Exæresis and Prosthesis, (i. e. Reuniting, Dividing, Extracting

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or Adding,) must strictly be defined an Art, whereby the Cure of those Accidents a humane Body is subject to, is wrought so far as manual Operations, and outward Applications can do it; but in none of its Sub-divisions can a Surgeon be excused in his utter Want, either of anatomical or physical Skill, which are to contribute their Share in perfecting of Cures.

Anatomy is universally acknowledged necessary, Practice without it being lame and imperfect; for how can a Surgeon, remarkably defective in this Part, judge what principal Bowel, (if in the Cavities) is wounded, or what the Accidents or Parts (making those dissimilar Ones of the Limbs) are that labour, and how unskilfully will he apply the Remedies, who, after knowing this, is still ignorant of their Constitution, Nature, Use and Actions, by which alone he can securely make Prognostick.

As Anatomy teaches when, so Physicks teaches how, the Symptoms peculiar to any Part or Bowel are excited, and Reasons and Directs accordingly; so that they seem inseparable Qualifications, and as the Artist is deficient in one or other, he must be proportionably dis-

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disqualified as a Surgeon: This will be farther apparent under the several Heads treated of in this Book, where it will be obvious, how impossible it is to speak of, or manage any chyrurgical Case without them; and how absurdly it may be undertaken, when two of different Judgments attempt it, one by Internals, the other by Externals.

The Physician, tho' of extensive Theory, yet when wanting in chyrurgical Knowledge, and arguing in general from the Solids, Fluids, &c. cannot take his Indications right, because the particular Case most often points out the Remedies, and a Proceſs for Relief.

I have endeavoured on the ensuing Subjects, to retrench as much as possible, superfluity of Prescription, and been as concise through the whole, as would consist with Pertinency and Information. If Instructive, it will be better for being short, and if not, pleads a more favourable Excuse; for long and unnecessary Diversifications hinders a Conception of the Subject, and naturally leads into Error and Confusion.

As each Chapter has a short Proem, initiatory of the Design and Contents, I shall answerably thereto prefix in the

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Remainder of this, some Relations from Authority, either of the Dangers and Mischiefs attending Ruptures, or of something uncommon in the Cure, which I found could not be well inserted in the Body of the Chapter without breaking in upon the plain and easy Connexion I think it now has.

The general Fault whence proceeds the Mischiefs Ruptures are incident to, is trusting them in their Recency to unskillful People, who not understanding any Part of Surgery, cannot distinguish Tumors; and if they did, would still be more to seek in proper Remedies; or else it is from a careless Negligence in the Parties themselves, who, tho' well advised, may not follow it.

Dr. Linacre, Founder of the College, and Physician to K. Henry VIII. died with the breaking of a Hernia.

A. Paræus mentions a Surgeon, who on opening an abcessed Navel, the Bowels instantly fell out; and cautions others against meddling with such Ruptures, particularly in Children.

*In another Place, he tells us of a Priest whom he cured of an Enterocoele, who, five or six Years after this, dying, was opened, and an adipose Substance, of
the*

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the Bigness of an Egg, found round the Hole, in the Process of the Peritonæum, sticking so fast it was scarce to be removed without tearing.

Blegni tells you of a Person labouring under an Abscess in Inguine, attended with great Putrefaction, and that a Portion of the Ileon; four Inches long, suppurated; and altho' the Excrement came that Way, and the Patient Sixty Years of Age, was cured. Of another, which was a compleat Enterocoele, not to be reduced; but the Matter in the Intestine was brought to Suppuration with the Production of the Peritonæum, even in the Intestine it self; the Extremity of the last agglutinating to the Circumference of the Aperture of the Abscess, and so could not be closed by Suture. Some again have had three Herniæ viz. Of the Navel, and one in each Groin.

Fabricius mentions a monstrous Exomphalos in a Woman of 50 Years of Age. In another, a ruptured Navel, at which came forth part of the Intestines as well as Omentum, occasioned by difficult Labour. A Gentleman of 73 Years of Age, who, for 35 of it last past, had felt a Tumor in the right Inguine, gradually increa-

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increasing to the Bigness of a Pigeons Egg, without any great Pain; and that 20 Years after the Appearance of the first, came another Tumor in the left Groin, soon exceeding the other in Largeness, and by the Increase of both, the Bubonocoele came to an Enterocoele, with a great Tumor of the Scrotum: He notes that on the Right-side could be repressed by the Hand, the other not; on which he argues the former must be intestinal or omental, tho' by so long Continuance and often Reduction, some Tumor were still left from the frequent stretching of the Parts; and that the other on the Left-side, which would not be repressed, must be one of those peculiar to the Scrotum: (Aquosa, he thinks,) and observes from such a Hernia, that strict Ligature or Bagging up, is hurtful; and also that the Weight of the Water, by Means of the Musculi recti, inserted at the Sternum and Cartilages of the Costæ nothæ, will sometimes effect a Straitness of Breathing. In another Place he gives an Account of an Enterocoele, from a Dilaceration of the Peritonæum, and the Gentleman being negligent of his Truss in riding, it slid down and became very troublesome, with Inflammation and great Pain,

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Pain, through the Abdomen as well as Rupture: The Intestine, says he, was now in Scroto, stuffed with Excrement; Clysters he threw up at his Mouth, and the Symptoms increased with greater Severity, till emollient Cataplasms having lain an Hour or two, and the Patient in a quiet Posture, it submitted to a gentle handling, and was returned; Broths and composing Draughts, fitted him for the Use of the Truss again. A Woman also troubled with grievous Torsions in the Belly and Stomach, with Vomitings, Watchings, &c. throwing up all Clysters at her Mouth; on enquiry it was found, that some Months before, she had a Tumor in Inguine, which in six Days increased to the Bigness of both Fists, and was a Rupture of the Peritonæum, thro' which the Intestines with their Excrement had fell, not to be easily returned. In order to it, he fomented with a Decoction of Mal-lows, Chamomil, Linseed, &c. making up the Faces and some Sheeps Dung into a Cataplasim, and renewing it on the Part every Hour for a whole night, which so suppld them, that in the Morning the Gut was repressed, the Excrement came off with a Glyster, and she recovered. Another on a Strain felt the Hypogasti-

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um crack, and the Intestines to slide into the Scrotum, which not being able to reduce, threw him into an iliack Passion, and next Day was troubled with continual Eructations and Vomiting, Costive, and his Urine passed with great Difficulty: The Symptoms increasing, and Clysters being thrown up at his Mouth, with much Bile and Excrement, gave little Hopes of his Recovery, dying on the fourth Day. On opening his Body, the Heon was found in Scroto livid, and in the Beginning of the Process above the Os Pubis, was found a spongy Fungus involving the Intestine, and adhering to the Membranes, which he judges arise from the Blood effused at the first Day's Hurt.

He gives likewise an Account of a Cooper's Wife, who helping her Husband in his Trade, received a Blow in her left Inguine, by which the Peritonæum was ruptured; she had a large Tumor there, increasing so fast, it could not be retained within the Abdomen, and being with Child, the Uterus was distended, and therewith the Skin of the Left Inguine so stretched, the Child might be felt pendulous; however, she
went

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went her due Time, but the Child had a caſarian Birth, which the Mother was in a fair Way of recovering, till being ſeized with a Syncope, rather for want of neceſſary Supports, than any thing elſe, died ſuddenly.

All other Authors on this Subject, frequently abound with ſuch like Caſes; Ruptures that not being timely reduced, or neglected, have fell into the Scrotum, where the Excrements hardening, Gripes and Iliack Paſſion have followed, or an Inflammation, Vomitting, Suppreſſion of Urine, Watchings, Singultus, Languors, Death.



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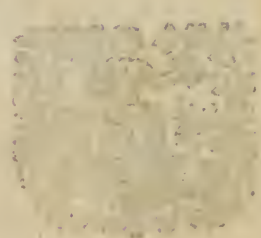
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CHAP. I.

Of RUPTURES.



ANT of Health is not always from Intemperance and irregular Living; it sometimes depends on a due Constitution of the Parts of the Body. The weakening of any one of which is a Disease, and this weakening, among other various Causes, may be occasioned by a vitiated Site, that probably induces an *Atonia*: And this, in respect to Ruptures, may either be through the Fault of the Part it self, or else those that contain it.

B

To

To a right Understanding the Nature of our present Subject, it is necessary to be acquainted with the Parts immediately concerned, *i. e.* the *Peritonæum*, *Omentum*, and Intestines, Scrotum and Muscles of the *Abdomen*; for whoever shall be unacquainted with the Make and Use of these Parts (that lye very nigh to those necessary for the Conservation of the *Individuum*, or Propagation of the Species) will be so far from redressing, that it is a Chance if he does not aggravate the Evils they may suffer under.

But, previous to this Transcription of their Make and Use, it will be necessary to observe in general, first, from their Site, that in umbilical Ruptures the *Intestinum Jejunum* always comes forth first; in *Prolapsu Ani*, the *Rectum*; that no other than the *Ileon* passeth the left *Anuli Musculorum*, and that sometimes part of the *Colon* on the right Side may be protruded further. If the Ligaments of the *Colon* may be dilated enough, the *Cæcum* may fall down into the *Inguine*: It seldom happens so indeed, but, I think, would be of less Admiration than what Authors tell us of the *Ventricle*, or of the Spleen and Liver falling downwards
by

by a Relaxation of their Ligaments. Secondly, From their Magnitude we may observe, that the Caul cannot in its proper Dimensions touch the *Inguine* or *Scrotum*; when increased in Thickness and Weight indeed, it may dilate or break the *Peritonæum*, and this again may be casually broken or distended (as other external Hurts happen) and so let the contained Parts fall even into the *Scrotum*; but where the *Bukonocle* shall be large, whether or no part of it might not be safely cut off? Nay, whether ever the Parts can be restored to their natural State, or secured from interminating Symptoms without it? From the Processes of the *Peritonæum* (thro' which Ruptures in both Sexes fall,) it does no way appear that any considerable part of the Intestine (especially stuffed with Excrement) can pass, and that therefore their arriving sometimes to such Largeness and Easiness of slipping down, must be from the frequent stretching and dividing the muscular Fibres, by a long and unregarded Bearing and Tendency of the Caul and Intestines towards the *Inguine* and *Scrotum*; external Hurts and Strains now and then contributing a Share:

From which Frequency, and the Occasion of it, we frame our Prognostick.

Lastly, On a Reposition of the prolapsed Parts, there must be a due Regard to the Obliquity of the *Processus*, which are made to pass assant through the *Annuli Musculorum*; and therefore must be repressed towards the Margin of the *Os Ileum* on the hurt Side: Unskilfully to force a way between the Muscles, would be painful and dangerous; and so would the mistaking a Testicle in *Inguine* for a Rupture. But to be more particular in the Parts concerned.

The *Musculi Abdominis* help to support the *Viscera*, and hinder the Descent of the Intestines, through whose *Annuli* they difficultly slide, and are as difficultly returned, as will best be made appear from their Construction.

1. *Musculus Obliquus descendens* is fastened above to the *Costæ not hæ*, and some of the *Costæ vera*, on the hinder Part, to the Muscles of the Back, from whence it proceeds on each Side, and comes to the *linea alba*; beneath to the *Os Ileum*, and Margin of the *Os Pubis*, nigh which its Fibres are opened to make a Space for the Passage of the Spermaticks.

2. *Obli-*

2. *Obliquus Ascendens*; they lye under the former, a little larger, higher and more remote from the *linea alba*, affording a Passage also to the Spermaticks, called *Annulus secundus*.

3. *Rectus* goes directly from the *Cartilago Ensiformis*, to the *Os Pubis*.

4. *Pyramidalis*, sometimes one on each Side, and sometimes single, lye under the former, and at joining of the *Bones*.

5. *Transversalis* goes from the Appendices of the *Vertebræ Lumbares* athwart the Belly, its upper Part is fastened to the *Costæ Nothæ*, the lower to the *Ossa Ischii* and *Pubis*; where, like the oblique Muscles, it forms another Ring for the Passage of the spermatick Vessels, larger, higher, and at greater Distance from the middle of the Belly.

6. *Cremaster* lies on the Folds of the *Inguen*, according to its Length, and propagates its Fibres to the Testicles, becoming their proper Suspensors.

All these Muscles on the inside of the *Abdomen*, are covered by the *Peritonæum*, whose Productions, without separating any of its Fibres, are carried also to the *Scrotum*, and are the Parts which primarily suffer in Ruptures.

Peritonæum is a membranous Duplication, covering and containing all the *Viscera* of the *Abdomen*, thickest from the Navel to the *Os Pubis* (especially in Women for Distention in Gravidating.) Its internal Surface smooth and unctuous, from a Number of small Glands that bespreads it, which in hydropick Bodies grow (as the Membranes do,) more large and visible.

It is connected on the outside to the tranverse Muscles and *Linea Alba*, below to the *Os Pubis*, on the Sides to the *Ossa Ilii*, behind to the *Os Sacrum* and *Vertebræ Lumbares* : It is also reflected from the inferior Surface of the *Diaphragma* to the convex Surface of the Liver, which it suspends, called *Ligamentum Hepatis Suspensorium*. The exterior Coat hath two Processes falling down into the *Scrotum* in Men, and make each *Tunica Vaginalis* ; and in Women the *Involucrum* for the *Ligamenta Uteri Rotunda*. Ignorance sometimes of knowing precisely where those Processes pass the Perforation of the Muscles, has made Ruptures taken for Tumors of another sort attempting Suppuration ; and contrarily has been the Occasion of putting Trusses on Apostemations that should be opened.

opened. In morbid Cases great Quantity of *Serum* hath been found between its Duplicature, when there hath been none in the Cavity of the *Abdomen*; and is supposed the true Tympany, frequent in Women whose *Ovaria* are probably first affected.

Funiculus Umbilicalis consists of a Vein, two Arteries and the *Urachus*, which soon after the Birth dry into the *Ligamentum Umbilicale*, or Suspensor of the Bladder. The Knots in it are fleshy Membranes, to moderate the Motion of the Blood towards the Infant; and Care should be taken that the Ligature made on it at the Birth should not be too slack; a Mistake that has been the Occasion of fleshy Excrescences of considerable Bulk, frequent among the Negroes of *Africa*, and, if ever cured, requires a second Ligature, and perhaps *Escharotics*: Nor should it be cut between the Ligature and Child, but without it.

Omentum covers and fluctuates on the Intestines, extends from the Bottom of the Stomach to the Navel, where it commonly ends; or rather a little lower on the left Side; which is the Occasion that the Lapse of it is generally there down into the Region of the *Hypogastrium*, and

sometimes the *Scrotum* causing *Hernia Epiplocele* : When in Women it happens to slip down between the Matrix and Bladder, it makes a Compression on the Orifice of the *Uterus*, and thereby hinders Generation ; its Weight commonly about half a Pound, but in hydropical Persons much more ; *Fabricius Hildanus* saw it of 56 Pound.

The *Stomach*, in its natural Site seems so couched as to be unable to give any Disturbance to the *Hypogastrium*, yet accidentally may contribute much to the Production of Ruptures, either as it is pressed downwards by the *Diaphragma* in violent Coughing, or through intemperance in eating and drinking. For as the Stomach may ordinarily hold three or four Pints, so if it be distended beyond that, by voracious and debauched Meals, or by Flatulencies from improper Diet, it may thus accidentally help to press the Intestines towards the Process of the *Peritonæum*.

Intestines : The Intestine commonly falling into the *Scrotum*, and causing a *Hernia Intestinalis*, is the *Ileon* ; being about twenty one Hands breadth long, it possesseth almost all the circumferential Space below the Navel. It is not fastened

to the neighbouring Parts, as the *Colon* and *Cæcum* are, which, for that Reason, fall later into the *Scrotum*, and not till the Rupture is large.

The *Scrotum* is externally divided by a Seam from the *Anus* to the *Penis*, and has an outward muscular Coat, which contracts it into a Purse as it were, and an inward one called *Dartos*, which gives a Covering to both Testicles. Each Testicle besides hath three Tunics; the *Erythroides* from the cremaster Muscle, which suspends it; the *Elythroides* or *Vaginalis*, from a Production of the *Peritonæum*, and the *Albuginea*, nervous white and thick, which immediately clothes it, and whereof the Testicle being divested, appears to be a soft loose Body, composed of several seminal Vessels, and many capillary Branches of Veins, Arteries, Nerves, and Lympheducts, like a Gland. They have also pertaining to them, the *Epidydymides* and *Vasa Deferentia*; the former small round Bodies arising from one End of the Testicle, and running their whole Length; their Use is to receive the *Semen* separated in the Testicle, and pour it into the Trunks of the *Vasa Deferentia*, with which they are continuous.

Uterus.

Uterus. The *Uterus* is small, but being membranous, very distensible, placed between the Bladder and *Rectum*, having two broad Ligaments, which from its Bottom are fastened towards the Kidneys, that the Weight of the *Fætus* do not bear it downwards. And two round Ligaments, which passing with the *Processus Peritonæi*, are fastened to the lower Part of *Os Pubis*, and upper Part of the Thighs, to hinder its Ascent, which might disturb Respiration, or the Office of the Stomach. The exterior Parts are obvious, and need no Description.

Definition. Burstiness, termed *Ruptura & Hernia*, are *Tumores contra naturam partium quorundam membranacearum imi ventris Producti situ depravato, i. e.* A depraved Site of some membranous Parts of the *Abdomen* (the Intestines or *Omentum*) breaking forth at the Navel, or what is more common, sliding into the *Inguen* or *Scrotum*; the former imperfect from a Relaxation of the *Peritonæum*, the latter perfect, and more properly termed a Rupture.

Sorts. In Respect of this Site they are termed *Omphalocèle*, or *Hernia Umbilicalis*, *Bubonocèle*, or *Hernia Inguinalis* and *Oscheocèle* or *Hernia Scroti*.

In

In Respect of what membranous Part it is that has thus changed its Place, (Intestine or *Omentum*) they are termed *Intestinalis* or *Epiplocele* (*Zirbalis*.)

And the *Hernia Scroti* from the peculiar Matter fixed in it may other Denominations, *Ventosa*, *Aquosa*, *Carnosa*, and *Varicosa*, (*Pneumatocele*, *Hydrocele*, *Sarcocele* and *Circocele*;) and sometimes by a Complication *Hydro-Pneumatocele*, *Hydro-Sarcocele*, as well as *Euteropiplocele*.

Causes. The immediate antecedent Causes of Ruptures are various; *Omphalocele* and *Bubonocoele* are from a Rupture or Distention of the interior Part of the *Peritonæum*; but when either the Caul or Gut appear in *Scroto*, there is not only this interior Rupture, but also the exterior *Apophysis*, or Process of the *Peritonæum*, must be relaxed, if not ruptured. Again, in *Hydrocele* and *Pneumatocele*, there is no Occasion for Ruption or Relaxation, for these proceed from the immoderate Moisture and Laxity of the *Peritonæum*, as is manifest in Children.

External Causes are any violent Motion of the Body, the eager crying of Children, Distention of the *Abdomen* by hard Labour, immoderate Venery, hard Riding,

Riding, carrying heavy Burthens, Falls, straining the Voice, hard Stools, Coughing, Sneezing ; and even the very Weight of the *Viscera* in fat Persons, has caused imperfect, and when neglected, perfect Ruptures.

Signs. Signs of *Bubonocoele* is a round Tumor in *Inguine* ; it begins from *Os Ischii*, increasing by little and little, and when pressed does readily go back. If an *Enterocoele* is in *Scroto*, the Tumor seems hard, and when pressed goes back with Noise : If *Epiplocele*, the Tumor will feel soft like Wool ; but unequal, and does not go back so easily as the Intestine. Signs of the *Peritonæum* ruptured, are a sudden increase of the Tumor with acute Pains ; in a Relaxation not so, they are less, and come and vanish together. Windy Meats, and plentiful Meals increase all these Tumors.

The watry and windy Ruptures increase gradually, but are perpetual, *i. e.* do not disappear by laying down, nor are to be repositied as the others, and may be thus distinguished. The *Hydrocele* or watry is soft and smooth, until the Augmentation of Humor has greatly distended it, and then is transparent by a Candle light : The Tumor may be either

ther seated between the Coats of th Testicle, or included in a proper Cystis, judged of chiefly from their Figure. The former assuming that of the Testicle, and is oval or oblong; that in the Cystis round. The *Pneumatocele* or windy, is much lighter and softer than the other, and makes a kind of Sound when ticked upon. *Sarcocele* is known by its Unevenness, Hardness and dark Colour. *Circocele* by the knotting and Distention of the Veins. If the *Omphalocele* be from the *Omentum*, it retains the natural Colour, is almost without Pain, and returns without Noise as soon as the Patient is laid on his Back; if the Tumor be from the Intestine, it is more uneven; if superfluous Flesh, it is more difficult to press in; if Wind it is softer, slipping with Noise under your Finger, without going back; if Water, it is of a darker Colour; and lastly, if the Tumor be from Blood, it is livid like an *Ecchymosis*.

Prognosticks. Children from their violent crying, the Softness of the *Peritonæum*, and feeding on crude Milk, are most subject to Ruptures, especially in their earliest Months. If their *Omphalocele* is caused by the Intestine, *Omentum*, Wind or Water, it is curable; if
from

from Flesh or Blood, doubtful and difficult. Again, their *Hernia Omentalis* and *Intestinalis* may be cured by proper Means till *Puberty*, but in adults, scarcely without Surgery. The two sorts of *Bubonocoele* are common to Men and Women, though not so frequent with the latter, by reason of the greater Thickness of the *Peritonæum*. Those in *Scroto* are peculiar to Men, though a Resemblance happens sometimes in the other Sex, for their *Ligamenta Uteri teretia* pass between the *Laminae*, as the *Vasa Spermatica* in Males do.

The left *Enterocoele* is more grievous than the right, because the *Cæcum* is always replete with Excrement, and not fastened to the *Omentum*, but pressed upon by the lesser Intestines. Most dangerous of all are when the Gut is doubled and filled with *Fæces*; the Patient often, in this Case, suffering a Fever and Gangrene, and goes off with *Singultus*.

Sarcocoele and *Circocoele*, if large, are not safely managed, either by Pharmacy or Surgery. When they are recent, and only the Effect of too hasty and quick Purges in *Gonorrhæas*, they submit to mild and anodyne Topicks; but when confirmed, they take the Nature of a
Scirrhus

Scirrhus on the Testicle, and will be dangerous tampering with, lest they turn cancerous and mortal. *Hydrocele* and *Pneumatocoele* are in the Beginning curable by Medicaments ; but when the Tumor forms it self large, Surgery is requisite.

Herniæ Intestinales in People of full Growth, are, for the most part, capable only of being kept up by good Trusses and Bandage, which Patients must be wary in neglecting ; for grievous Pain succeeds their disuse, Cholick and Fever : And sometimes, when the Excretion of the *Fæces* are stopped, there follows vomiting, and an Inflammation of the Gut, a *Singultus* and Death. Yet it may be observed, when the Diruption of the *Peritonæum* is large, a Tumor in *Scroto* may be produced as big as one's Head, and neither much Danger or Pain will be obvious to any one in the Objects of this Sort that present in the Streets, who have as free a Passage, no doubt, through the prolapsed Intestines, as if they were *Intra Peritonæum Abdominis*.

Hernia Omentalis is difficultly reduced and retained, yet less so in Persons of a humid than dry Habit ; in the *Inguen* than *Scroto* ; it will be most hard when any Excoriation from rough handling

ling has been the Occasion of generating some intervening viscid Substance to hold it fast.

The Cure. In general, we should prescribe a Diet warm, drying, and of good Nourishment, as Mutton, Veal, Lamb, Pullet, and the like, keeping their Bodies soluble by this, or purging ; avoiding at the same time, all Herbage, Fruit, Fish, and Milk Meats, with what else are supposed to engender Crudities. Their Drink, a red Wine with Water, wherein if Steel be quenched it is better ; a chalybeate mineral Water, or a medicated Ale ; if a Cough, obtrude the proper Remedies must be administered, and all Intemperance and Excess must be forbid, whether it relate to eating and drinking, or to Exercise, as Walking, Running, Leaping, Riding, Coughing, Sneezing, and inordinate Laughter. Consequently Rest and an easy Position must be obtained, as far as possible, and Freedom from Passion, and every Disturbance of the Mind. This is so necessary, that perfect Cures have been wrought by Sickneses that have confined Patients to their Bed.

So much may suffice for a general De-meanor herein ; the particular Cure comes under three Intentions.

Inten-

In'entions. 1st Intention, is a due Reposition of the prolapsed Part into the proper Place; done by softening and discharging the Excrements, by laying the Patient on his Back with his Buttocks raised; and then with fomenting warm Cloaths, and gently repressing it with your Hands; if it does not submit, Mr. *Wiseman* advises the putting him on the Back of a strong Man, with his Head downwards.

2. Is to keep it right when it is reduced; done by proper Bandage and Trusses.

3. Is to give a Contraction to the relaxed Parts; done by the cold Bath, by astringent Fomentations, Cataplasms and Emplaisters.

The cold Bath, as it has proved of infinite Service in many Distempers, invigorating both Mind and Body; so it will be particularly useful here in the relaxed, weak and paralytick State of the containing Parts, provided due Regard be had to Age, Strength, and Time of Continuance in it.

Astringent and agglutinative Simples are *Rad. Bistort. Symphiti, Tormentill, Os-mund. Regal. Fol. Fragar. Millefol, Pentaphyll, Prunell, Tapsi Barbati, Equiset* :
C
Burs.

Burs. Pastor. Plantag. Sumach. Cort. Querc. Granator, Flor. Rosar. Balauft. Noces Cypress. Lap. Hæmatit. Terra Sigillat. Bolus Verus, Acetum, Oxycratum, Vinum rubrum, Aq. Fabrar. G. Arabic. Ammoniac, Tragacanth, Opoponac, Mastich. Thus, Aloes, Sarcocol, Ichthocol, Terebinth. Gypsum, Farina, Amylum, Herniarium, Sang. Dracon.

These may be variously used in Fomentations, Baths, Cataplasms, or Emplaisters: Your Emplaister, whether it be any Composition from these, or the *Ad Herniam* of the Dispensatory, should after Fomentation, be applied with Compress and Truss, and left on for a Month, without removing,

Internally is recommended *Troch. de terra Lemnia cum Carabe ʒj. in haustulo vini albi.*

Succ. Symphiti, vel tapsi barbat. ʒij. (vel Pul. Sigill. Solomonis ʒj.) in vin. alb. Sumend.

ʒ. *Rad. Sigill. Solomon. Symphit. maj. sem. Anisi a. ʒj. F. Pulvis ad herniam detur Infantibus ter in die ad gr. xv. Adultis ʒis. superbib. Decoct. Millefol. vel Sympkit. haustum.*

Father Cabreré's Secret was *Sp. Salis bene rectificat. ʒis. in vino Clareto ℥j. de quo*

quo sumat haustu'um (jejuno stomacho)
pro tribus septimanis ; and the following
Emplaister, R. Pul. Mastich. ℥ss. Labdan.
ʒiij. nuces Cypress. N^o iiij. Hypocis. ʒj.
Pul. Rad. consolid. maj. ℥ss. Picis nigri
ʒij. Tereb. Ven. ʒj. M. F. Empl.

Vigerius has R. Conf. ros. rub. Rad.
Symphit. a. ʒj. cort. Cydonior. Condit. ℥ss.
G. Tragacanth. terra Sigillat. Corall. rub.
Pul. Herniariæ a. ℥ss. Croc. Mart. Astring.
Magnet. a. ʒj. cum sacchar. rosat. F.
Conditum vel addito syr. de rosis siccis, cu-
jus capiat ʒij. singulis Auroris superbib.
haust. vini.

℞. Conser^e. Rosar. rub. Absynth. a. ʒj.
Species Diarrhod. Abbat. ʒij. M. F. Condit.

As Ruptures differ not only in the
Part falling, but also according to the
Place it falls to, and the Matter it con-
sists of ; so it is evident besides general
curative Intentions, there is required
some Variety of Method peculiar to each.

Hernia Umbilicalis. First, the *Umbi-
licalis.* Ambrose Paræus directs the Pa-
tient to be laid on his Back, and with
Fomentations to repress the Caul, or Gut,
with the Fingers : If it should not yield
to this, through its Largeness, or other
Circumstance, then to take up the Skin
round the Tumor, and having brought it

between your Fingers, to make a strait Ligature on it with Needle and Thread, to scarify the circumjacent Parts, and cut off what is without side the Ligature : To this if we add a quiet Position and Regimen till a *Cicatrix* is formed, it is probable the muscular containing Part may contract so as to keep the Internals restored. Mr. *Wiseman*, and others, for the larger Ruptures of the Navel, do, after Reduction, use a Bracer to lace on the whole Belly, under which a Bolster may be placed of proper Dimensions on the Navel, and under that an Emplaster *ad Herniam*. If the Skin should mortify through neglect, *Stitch*, says he, the *Peritonæum per Gastroraphiam*. Though others, as *Fabricius*, *ab Aquapend.* will scarce allow the *Peritonæum* to be ruptured in *Hernia Omentalis*.

Hernia Intestinalis. Secondly, the *Intestinalis*, more frequent than the former, and of worse Consequence. In order to Reduction, the Patient should be placed on his Back, with the Buttocks raised higher than the Head ; then with warm Cloths and Fomentations endeavour gently to repress, and that Part first which came out last, whether it be in *Scroto*, a *Procidencia ani*, or an *Exampbalos*, being

ing very careful against rough Measures, which sometimes produce Inflammation and Gangrene.

In Children, the Impediments to Reduction, by the Softness of their Constitution, is easily superseded, and with an astringent Fomentation, a convenient Compress and Bandage, using all careful Means against crying and coughing, and resting the Child for some Days (if possible on his Back) will generally bid fair for a Cure. But in Adults the Case is altered, violent Pain, Inflammation, and sometimes a speedy Death ensuing; and this perhaps never more frequently than from a Plenty and Induration of the Excrements, the common Incentive of all those Symptoms we denominate under the *Iliack Passion*, (a Distemper arising from an Inversion of the *peristaltick* Motion, and not any pretended doubling, twisting, or Inversion of the Gut it self;) for if a Stop be made in the Passage, whether by such Induration I have been speaking of, or a sudden Fluxion of Humours inflaming any Part of the Gut, (and especially when displaced,) what must the Consequence be but acute Pain, a return of every thing upwards, *Languors* and *Synopes*? For relieving these,

and softening the indurated Excrements, Embrocations of emollient Oils may precede, and then carminative Clysters, Fomentations and Cataplasms, renewing them often.

R. Ol. lillior. rosar. a. pæ. A Clyster of *Vini Canariensis cum Oleo Nucis*; or

R. *Althæ*, *Malvæ cum radice fol. Origan. Calamentib. Summit. Anethi a. Maj. sem. Anisi ʒij. Flor. Cham. Melilot. Samb. a. p. 1. F. Decoctio ad lbj. in qua dissolve Diaphæn. ʒj. pro duobus Clysteribus.*

Eodem decocto cum vino joveatur pars tumefacta. / ex facibus, seu Magmate F. Cataplasma Addendo farin, Lini fænugræc. Axung. Porcin. & butyri recent.

R. *Rad. Althæ lillicr. a. ʒij. sem. lini fænugræc. a. ʒij. Fol. Malvæ Violar. Parietar. a. Mj. Coquantur in Aq. commun. postea tundantur & trajiciantur per s'taceum Addendo butyri sine sale Ol. lillior. q s. Fiat Cataplasma Calide Scroto & regioni Hypogastrii applicand.*

If the Clysters come off without Effect, and the same Means already mentioned are ineffectual to Reduction, it is a Practice to enlarge the Rings of the Muscles, (where the Stoppage usually is) by Incision, which need not extend to the *Scrotum*, unless the prolapsed Parts adhere

adhere there ; nay, when the Pain and Induration are observed to increase, and the Danger more imminent. Authors go farther, and prescribe the *Punctum Aureum*, as some others have done an actual Cautery, or *Causticum Medicamentum*, to compleat a Cure.

The *Punctum Aureum* being neither very common or safe, should be undertaken only in extream Necessity, warily, and at the Impetration of the Patient.

An ingenious Author thus describes it. You are to make, says he, your Incision on the *Os Pubis*, so that you may pass a Director under the Process of the *Peritoneum*, according to its Rectitude : Then having raised it up, separate it from the Fibres and nervous Bodies, to which it adheres, being particularly careful in removing the *Vasa Spermatica* and *Cremaster* Muscle, without hurting them. That done, take hold of so much of the Process as is now loose, with a Pair of Forceps, and pass it through with a Needle and Thread five or six double, as close to the Spermaticks and Cremaster Muscle as may be done, without molesting them. Lastly, pass through the Middle of that part of the Process which remains without your Forceps, and take up the Lips

of the Wound together with it, draw a strict Knot, and leave the Ends hanging cut at the Wound, till they drop off themselves, and that is agglutinated. *Non temere* (says *Celsus*) *nec nimis Cito ad Sectionem veniendum quia sæpe præter spem hernia Curatur.*

To check the Inflammation that may arise on this Operation, the Tumor should be moisten'd with *Oxycrate ex Aq. La-fluæ Cochlear. vj. Acetum ros. Coch. i.* and lay on the *Ceratum Galeni, viz. R. ceræ Alb. ℥ij. Ol. Rosar. Omphacin. ℥ijj. Con-quassentur cum modico clari & albi aceti ut F. Ceratum.*

Pneumatocèle, or Hernia Ventosa, & Aquosa. Tho Ruptures are properly only of the Intestine or Omentum, and perfect only when in *Scroto*: Yet other Tumors in this Part from a Resemblance have obtained the Name of *Herniæ*; there are four of these Tumors, the two above mentioned having some Affinity with each other shall be considered with little Distinction.

The *Ventosa* is most frequent in Children, the Tumor of sudden Growth, round, and affecting different Parts of the *Abdomen*, but chiefly the Testicle being contained within the *Tunica Vaginalis,*

lis, and in such Case approaches towards the Shape of it.

They are generally of easy Cure, it consisting in discutient Fomentations, gentle Laxatives, avoiding all things flatulent, an *Empl. e. Cymino velebaccis lauri*, and a Bag-Truss: This only is to be observed, that when the Tumor is very tense, your Compression and Bandage should be less strait, for fear of inciting Pain and Inflammation.

℞. *Flor. rosar. r. Hypericum Cham. a. Mj. Cort. Granator. (vel querc.) Gallar. nices Cypress a. ℥j. coquantur in Aq. Fabror. vel Calcis liv. ad medietatem Ad-dend. sub fin. Alum. rock. ℥ij. S. V. ℥iv. F. lotus.*

Et mullers Fomentation. ℞. Stercor. ovis q. v. Coque in lacte Vaccin. q. s. et Cola. Valet (says Fuller) cum Intestin. flatu distentum, aut induratis facibus Infarctum vix reduci potest.

℞. *Fol. Verbasci Althæ Flor. Cham. rosar. rub. a. ℥ij. farina fabarum, Orobi. sem. Dauci. Cymini Carui a. ℥j. Bacc. Juniper. lauri a. ℥iss. Summit. Rutæ Ori-gan. a. Mj. F. omnium Pulvis, & cum li-xivio & vino rubro F. Cataplasma.*

℞. *Empl. Diachyl. cum G. ad Stru-mas Cymini a. ℥j. liquatis adde Tere-bint h.*

bintb. Cypri. ℥℥. Ol. Hiper. ℥ij. Pul. Rad. Iridis ℥ij. Argent. viv. Axung. Porcin. a. ℥℥. M. F. Empl. Scroto Adultorum Applicandum.

It is always supposed after the Use of Fomentations, a Stupe wrung from it, an Emplaister or a Cataplasim be retained on with a warm Bag-Truss, and the Person recommended to a quiet Position and Regularity of Life.

Inwardly, *℞. Aq. Carminat. vel Chamæ. Com. ℥vj. Sp. Cymini • ℥iss. Juniper. ℥iv. Essent. Cort. Aurant. Citri. a ℥j. Essent. Opii ℞j. Ol. Puleg. gutt xij. M. hujus detur ℥iss. in Vehiculo P. valet etiam in Passione Colica, Hysterica, & torminis Intestinorum.*

Hernia Aquosa. The *Hernia Aquosa* is an hydropical Tumor, possessing or contained between the Membranes of the *Scrotum* or Testicle, or both; generally *Anasarcous*, *i. e.* bred *ab extra*, from a Poverty of the Blood, whence its Compages is loose and watry, emitting this Serosity on a Part weakned perhaps by some precedent Irregularities; And that it is thus, and not from any lapse of Water out of one Cavity in the other, is plain from our Observations on ascitical People; who, altho' the Tumors

mors be very large, yet if the inner Membrane of the *Peritonæum* continues whole, lets not any water downwards: And also that this Tumor frequently arises here, when no Part of the Body else appears hydropical.

The beginning Tumor, and in young People, is very likely to resolve and dissipate, with Bleeding, Purges, a Bag-Truss, an assiduous Use of discutient Fomentations and Cataplasms, and a good Regimen.

The Fomentation may be made *ex floribus Balaust. Rosar. nuces Cupress, &c.* or *R. Sem. Cymini Anis. a. ʒij. Alum. rock. ʒj. Cort. Querc. Granat. a. ʒij. Coq. in vin. rub. & Aq. Fabror a lb ss. Fiat Fodus ope Pannorum applicand.*

The Cataplasm, *ex farinis Hord. fabar, &c.* or *R. Fol. Hyosciam. Cicutæ fol. Malvæ Flor. Cham. a. Mj. Rad. Bryon. lillior. a. ʒiv. sem. lini fœnugræc. a. ʒij. coquantur in brodio ex Capite ovinis F. Fodus.*

Ex Fœcibus Fiat Cataplasma cum Medul Panis triticum Mell Commun. & Axung.

Or instead of these, the Prescripts under the Head of *Hernia Ventosa*.

Catapla-

Cataplasms, I take it, are most effectual for resolving these incipient Tumors, because the *Membrana adiposa*, being wanting in *Scroto*, the Coldness of the Part is a sufficient Check to Dissipation, nor can that Impediment be overcome by Application less retentive, or less communicable of Heat than they are.

They will still be of greater Estimation in the increased Tumor, whenever it shall be thought necessary to give a Vent by Blister, or a superficial Section, especially the last; (which is urged as a preferable Practice, when the *Hypogastrium* is *Anasarcons*, because the copious Discharge it makes, keeps off a Load from the vital Parts;) for opening such cold Tumors, and in such cold membranous Parts, will ever give great jealousy of an Extinction of Heat; which no Applications whatever are more likely to conserve than Cataplasms.

But when the Tumor is so increased, as to want external Operation to discharge the Contents of it, Incision by Lancet or Knife is the common and approved Practice; Causticks are less eligible, because as I observed, the fatty Membrane is wanting.

The *Præ-requisites* to this may be. First, in respect to time, that is, properest for Apertion in Adults, when the Tumor is judged to contain upwards of a Pint of Water, less may make you fearful of hurting the Testicle; and a very large Quantity (for I have heard of seven Pints and more being let out in a Day) hazards more eminently the Mortification, by the Lapse and greater Flaccidity of the Membranes on its discharge. Secondly, It may be observed, that one Puncture is sufficient when the Water is without the Testicle, or contained in a Cystis; but a double opening will be required, should there be any Water contained within the *Tunica Vaginalis* of each. Thirdly, You are immediately after Apertion, to thrust in the *Canula*, for when the *Scrotum* is as yet distended, the Membranes composing it, answer to one another in the Orifice, which will not so easily be when flagg'd, nor so promotive of the Discharge. Fourthly, It may be considered, that if a Flux of Blood should happen, from wounding some small Vessels in the Puncture, the *Canula* should be withdrawn, and Compresses spread (to restrain it) with wheaten Meal

Meal beat up with the whites of Eggs: But herein be not too credulous, for a very small matter of red, gives Tincture to the *Serum* in this Operation. Lastly, chuse a depending Part, (not on the Seam,) and then steddying the whole, thrust your Lancet in, and make an Orifice of a fit Capacity to receive the *Canula*, which ought immediately to follow, and be continued there untill the Water is all drawn off; most conveniently done at once, unless the Quantity be very large, and the Patient in any weak or ill Plight of Health; and then it is better at two or three Times in the same Day.

The Dressing need be no more than a Pledgit spread with some Digestive, an *Empl. ebolo*, a *Cataplasma ex farinis*, and a Bag-Truss, fomenting at each subsequent Dressing. The Orifice soon heals, and then it would be necessary to add a Purge or two, and prescribe a dry Dieting and Course of Bath-Waters; for even under the most cautionary Methods, they frequently fill again in a Year or two.

Fabricius Hildanus, on this Head says, the *Hernia Aquosa* is sometimes Complicate, *i. e.* sometimes the Intestines, and

and sometime a *Sarcocele* intermixes : Flesh growing and hardening through want of Heat to the Testicles, and their Tunicles to a great Bigness ; advising from the cancerous Nature of these latter Tumors to extirpate, unless the Root extend to the Process, or is communicable with any Part of the *Abdomen*, which then to do, he says, would be mortal ; and gives an Instance wherein he attempted by Incision to discharge the Seriosities in the distended *Scrotum*, of such a complicate *Sarcocele*, and the Consequence was, an Increase of the Pain, Inflammation, and cancerous Malignity. His Advice is not so judicious in another Place, where he talks of long thick Tents, and continued for the Space of two Months in one of these watry Tumors he had opened, contained within the *tunica Erythroides*.

The two other Tumors peculiar to the *Scrotum*, are the *Sarcocele*, or *Hernia Carnosa*, and the *Circoccele* or *Hernia Varicosa*, of some Affinity also, as having probably the same Original, but I shall choose to distinguish them (as they sometimes may be) by, the one being a gelatinous Humor
or

or *Fungus*, that overspreads the Testicle, and commonly takes its Rise from some external Bruise; the other a Distention of the seminal Vessels, and as commonly arises from the indiscreet stopping of a virulent *Gonorrhœa*.

Prognostick. In the Beginning they are both curable, the former by discutient Fomentations. *Riverius* says, he cured one to the Bigness of his Head, with the following Cataplasim. *R. Farin. Hord. et fabar. sem. Cimini flor. Cham. Melilot. & rosar. Pul. cum Oxymel coquantur ad Cataplasma.* The other term'd at first, *Hernia Venerea*, frequently resolves, by forcing the Running again thro' the *Penis*, or at least by Salivation: But as Negligence in the Patient, or want of Skill in the Surgeon, may lose the Opportunities of retrieving Mistakes, this Tumor frequently hardens into the Nature of a *Scirrhus*, uneven, under very imperfect Degrees of Sensation, and is then the confirmed and true Sarcocoele, incurable, and admitting only of such palliative chyrurgical Help, as will conduce to mitigate Uneasyness, hinder the farther Growth, or qualify other untoward Circumstances to the Patient's Convenience, as may from time to time occur.

In

In the *Carcocoele*, we repeat Bleeding, gentle Purges, emollient Embrocations and Fomentations, a warm Stupe wrung out of *Sp. Vini.* or an Emplaister.

R. Emp. Vigonis cum oio quadruplo ℥ij. Diachyl. Ireat. ℥iij. Gum. Ammoniacum solut. in succis Hyosciam. & Cicutæ ℥j. Pul. subtilis rad. Scrophular. Gladiol. a. ℥ss. Camphor. ℥j. Ol. Catellor. q. s. F. Emp. Continuo Gestandum cum fascia.

Internally medicated *Ales* from *Sassaparillas*, *Sarsap.* *Scrophular.* *Salvia*, *Mentha*, *Lig. Juniper.* *Guaicum*, *China*, *Santal.* and the like, giving every Morning *Pul. rad Ononid. ℥j. in hausto vini Amari.*

If the Tumor doth not tend to Suppuration, Chalybeats, Mercurials, Mineral Waters, and the following Suffitus may contribute towards the Dispersion and Wast of it.

R. Thuris Mastich. Sandarach. a. ℥j. Colophon ℥ij. Styrac. Calam. Benzoin a. ℥ss. Camphor. ℥j. Cinnabar. ℥ss. Antimon. Crud. ℥iij. F. Alcohol. & cum tereb. q s. fiant Trochisci pondere ℥ij. vel ℥iij fumus excipiat in sella perforata bis in die Cavendo ne quid exhalet.

But the longer the *Sarcocoele* has continued, the unsafer it will be to make

tryal of other than the mildest Palliatives, lest we redintegrate the Disorders that first gave Rise to it ; for if Pain and a new Fluxion should seize the Part, it almost infallibly Mortifies ; and then nothing remains but Extirpation, which cannot have the desired Success, if the Tumor have any Communication with the Parts within the *Abdomen*.

To Perform the Operation, you are to make Incision to the Tumor, and extend it above the affected Testicle, that so a Needle with strong Thread may be pass'd conveniently through the Proceſs, a first and second Time for Ligation : When clearing the Testicle from the *Scrotum*, you may bring that and the part of the Proceſs without the Ligature away, leaving the Ends of the Thread out to digest off: The Dressing may be an Egg or two, beat up with Rose-Water, a thick Compress spread with Cataplasim, and a proper Bandage.

I should take no farther Notice of the *Circocoele*, whose curative Intentions are equally comprehended in the former, only for this Peculiarity by some that they are what Varices are in other Parts of the Body ; *a Distention of the Vessels from feculent Blood*, and propose Incision

sion Ligatures, and opening the varicous Vessel as in other places; *si aliqua vasa testem Nutrientia Fuerint facta Varicosa, ea solum modo ressecanda & Seperanda teste reposito, &c.* I am obliged to take Notice, that the Method may be easy and successful in the *Scrotum*; but if the *Circocoele* be allowed to be a Tumor affecting the seminal Vessels, (which it ought,) then it cannot be done without the greatest Danger, at least such Attempt must prove of worse Portent and Consequence, than the resting satisfied with Palliatives.

Uteri & Ani Prolapsus. On a Chapter of *Ruptures*; I could not pass by those of the *Uterus* and *Rectum*, which I think may more properly be imputed *Herniæ*, than either of the four last Tumors.

The *Prolapsus Uteri*, take their Rise from hard Labour, Indiscretion of a Midwife, or Weakness of the Woman, from an immoderate Flux of the *Menses*, Humidity, relaxing the Parts, or lastly, from rough Handling; but in all these Cases, the Hurt may extend no farther than the inner Membrane of the *Vagina*; what is commonly reputed a falling of

the Womb, being nothing more than a Relaxation and Extention of that Membrane.

- In order to reduction and cure, Bleed and empty the Bladder, and *Intestinum rectum* by a Glister; then Place the Patient on her Back, with the Hips raised, as in other Ruptures, and with warm Cloaths, or Stupes out of warm Wine and Water, (or other Fomentation,) endeavour by gentle Pressings to restore it; if too deep for your Fingers, it may not be amiss to use a Stick armed with Linnen, of a proper Size.

- When the Womb is replaced, nothing better contributes to the Retention of it, and recovering the Laxity of the Parts, than keeping the Woman in Bed on her Back (if possible) and quiet, her Legs a-cross and raised: And when a Flowing of the *Lochia* or *Menses* inhibit not the following astringent Injection, and a Sponge wrung out of the same, to keep in *uteri Vagina*.

R. Rad. tormentill. cort. Querc. a. ʒi. Absynth. Salviae Menthae a. Miiij. Flores Rosar. balauſtior. a. Mj. Alum. ust. Sulphur. a ʒij. Coque in Aq. Fabror. Cong. Colaturæ adde Vini Clareti ℥ij.

If these Tumors have been of considerable standing, and through the Indisposition and Weakness of the Woman easily apt to prolapse; she then requires to be put under a Course of *Decoct. Guaiaci Sarsæ*, &c. and to adhere to a long continued Use of a Pessary.

Fabricius Hildanus orders them of Cork, ovally or sphaerically shaped, and to be spread with the following.

℞. *Ceræ novæ* ℥iij. *Colopbon. G. Elem.* a. ℥j. *Tereb.* ℥iv. *Pul. rosar. r. Myrtillor. Balaust. Rad. Consolid. Maj. a.* ℥j. *Masticb. Olban. a.* ℥℥. *Misceantur cum Oleo rosar. q s. F. ceratum.*

Or ℞. *Fol. Plantag. salic. Mespilor. querc. prunor. silvestr. summit rubi rosar. a* Mj. *Rad tormentill. bistort. symphit. a.* ℥j. *Balaust. nuces Cupress. a.* ℥℥. *sem. anisi* ℥℥. *inciduntur & contundantur omnia crasso modo pro Sacculo intertexto.*

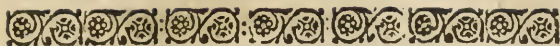
Procidentia Ani. A *Prolapsus Ani*, is what we meet with frequently, and is more troublesome than dangerous; it proceeds from hard Straining at Stool, Laxity of the Sphincter, from too much Serosity in the intestinal Glands, from Fluxes of the Bowels, where the Acrimony as well as Moisture disposes to-

wards it, and oftentime it is a Consequence of the *Hæmorrhoids*.

Prognostick. The longer the Intestine has been down, the less able it is to contract, (or be reduced,) the external Cold weakening that Property, and tumefying the rugous Coat of the Intestine, then thrust outwards.

Reduction may be obtained after the same Manner as the *Uterus*, viz. by a Clyster, warm Stupes, or Spunges wrung out of an astringent Fomentation, Forge-Water, or Claret heated; but when the Cause is from a *Diarrhæa*, a *Dysenteria*, or the *Hæmorrhoids*, respect must be had to those Distempers, before these external Means can effectually prevail.





C H A P. II.

FRACTURES *of the* SKULL.

HE Fractures of the Skull are, perhaps, more abstrusely handed to us by Authors, than any other Part of Surgery; all who have hitherto writ on them, have rather perplexed than removed the Difficulties to their right Understanding and Management: They have multiplied a Parcel of insignificant Terms and Names, without any Ideas annexed to them, and falsely deduced the Symptoms appropriate, and Necessity of the Operation subsequent thereto. This I shall endeavour more fully to explain in the Sequel, and substitute a Reasoning and Method more adequate to Truth and Practice.

Sorts. Ancient Authors have reckon'd up, or rather divided, these Fractures into a Multitude of Sorts, distinguished by proper Names, which, *M. Dionis* says, he has *reduced* to twelve, and those again

into three, to wit, *Incisions*, *Cracks* and *Contusions*; of these the former have more ordinarily the Process of Wounds; and unless by the latter be meant *Depressions*, it is an unintelligible Term, and therefore I chuse to make my own Division, *viz.*

A *Fracture* or *Fissure*, a *Contra-Fracture* or *Fissure*, and a *Depression*, Names which carry their own Explanation, and comprehend every Sort, which, as they stand further distinguished, express more a Variety of Cause than any thing else, and are an unedifying Amusement.

Of these the *Contra-Fracture*, or *Fissure*, is something particular, being opposite to that Part of the Skull the Blow was received, and is supposed to happen from a Concussion of that small Portion of Air contained within side; where the Force of the Blow driving, and the *Sutures* being very close it flies to the opposite, and meeting Resistance there, occasions the Fracture. What may come under this Denomination also, is when the second Table is broke, the first remaining whole; a Case that may happen, and to which the second Example at the End of this Chapter has some Resemblance.

Causes.

Causes. The Causes of Fractures are, any *great Blows* or *Falls*. The Convexity of the Skull is an additional Strength against them, because the Pressure in such Strokes declines towards the Cohesion of its Parts, but still not sufficient to overcome every Violence.

Signs. The Signs of a fractured Skull, must be separated into those that immediately happen, and such as succeed not till after a Time: Those that immediately happen are either evident to Sense, or are deduced from Reason; it is evident to the Sense when the Largeness of the Wound makes the Fracture visible, or is sufficient for a Discovery by the Finger, or Probe, or when without a Wound, the Depression is plainly felt. All other Signs accompanying them are Deductions from Reason, and are taken (when the Scalp is entire, and those Demonstrations of Sight and Touch wanting) from a Comparison between the Circumstances of receiving the Hurt, and the Symptoms conjunctly.

The Signs that apply to our Reason, are Vomiting, a Dizziness, and Bleeding at the Nose or Ears, and more violent are, when (with them) the Patient also lies senseless, stupid and speechless; all, or
some

some of these follow a Fracture immediately, and the Measure of a good or bad Prognostick is taken according to their Degree, and Time they continue.

Those that arrive not till after a Time are, First, The Patients feeling a Pain on biting any hard Body; and perhaps an often reaching of his Hand to the afflicted Part. Secondly, When a Dulness of Memory and Understanding, or a *Coma* follows. And lastly, when Fevers, Deliriums, Convulsions or Palsy, which do often unhappily succeed, and are the Fore-runners of Death.

It is with the first Order of Symptoms, *viz.* Those which presently appear on the Hurt, that I am at present concerned to examine, and what I am able to say on them, in reference to the Prognosticks and Cure, I shall deliver by Way of Answer to the following Questions.

First, That since the Signs enumerated will equally appear in a Concussion, whether it be or be not attended with a Fracture; how shall it be known when they are the Indications of such an Accident and when not?

Secondly, Why a Concussion attended with those Symptoms should not require the *Terebra* as much as a Fracture? In
answer

answer to the first of them; tho' it be true, that the same Symptoms happens in a Concussion with or without a Fracture; and that there is no certainty of arguing from one to the other; yet if on examining and comparing the Blow and Symptoms, they are severally found great and violent: It is incumbent on us to dilate the Wound for surer Information; and this when we do, should be rather by a cross Incision, than any other, because if right in the Conjecture, it can with facility be stretched to where the Fracture tends, or if not, it is a Wound (of any that are proposed for this Purpose) the most easily re-united.

To the latter Question, *viz.* Why a Concussion under the same Symptoms, with a Fracture does not equally require the Operation of the Trepan? We cannot resolve or determine our selves in, as to any particular Case, better than by consulting what is proposed by the Operation; the Reasons for, and the Objections against it.

The chief Design of this Operation, is said to be for discharging Blood or Matter extravasated between the inner Superficies of the Skull and *Dura Mater*; the Retention of which would occasion these

these Symptoms we have afore recited, sphacelate the Brain, and kill the Patient.

Now this being the Foundation on which the Operation of the Trepan is grounded, the Truth of it should methinks be better established to vindicate that Practice in every Fracture of the Skull, then to me it is.

For first, That such an Extravasation is there, or does inevitably follow on a Fracture, I cannot from my own Experience so constantly assent to: I have met with such a Case once, but it was from a Laceration of the Membrane, and mortal; but from others that has happened under my Care, (and nigh the Sutures too,) I am convinced such Extravasation between the Skull and Membrane, is seldom the Consequence of a Fracture: And if so, then whatever may be said in Defence of it, when to relieve the Membrane so oppress'd; yet here (which will be the greater Part of Fractures) the alledg'd Necessity of the Operation ceases, at least it proves in such of no Significancy to their Amendment.

Secondly, If an Extravasation must follow both on a Concussion and a Fracture, (as from equal Symptoms, we have equal Reason to suppose,) then there
seems

seems a greater Necessity for the Operation in the former, than the latter, tho' not practised, because the latter may possibly now and then be large enough for the Transmission of such extravasated Blood, and answer the End of a Perforation; whereas in a Concussion without a Fracture, we are sure it must be fatally confined.

Thirdly, Such Extravasation must happen either from the Skull lacerating the *Dura Mater ab extra*, or an Eruption thro' it *ab intra*, which considering the Toughness of that Membrane, the Stroke should be mortal that effects it.

Fourthly, It is difficult to conceive after allowing such an Extravasation how it will account (abstractly considered) either for immediate or subsequent Symptoms.

And lastly, I would be resolved of this Extravasation, whether it of Necessity must lay near the Fracture? Or not sometimes in a distant Part? Or that if at first it were nigh, yet while it continues fluid, it may not settle farther, especially to Parts depending? And how when it is coagulated at a Distance, the Operation conduces to its Discharge?

For

For the reconciling of these preliminary Quarries, will be always necessary to justify the Operation.

I have only started the Objections, and shall leave their Removal to others more opiniated, of the Necessity of the Operation in all Fractures; than my self, and proceed now to explain my own Notions about the Original and Cause of these Symptoms, with a Method more suitable to their Relief.

Their Symptoms fractured Skulls are incident to, whether immediate or at Distance, do not proceed from Fractures separately considered, but from the Concussion made at the same time in the Brain, by the Blow that occasioned them; for the Substance of the Brain being a Congeries of Vessels of soft and fine Texture, the violence that can break so solid a Bone as the Skull, (that contains it,) must indisputably rupture some of those Capillaries, and cause an Extravasation within, at the Fountain of Irradiation and Efflux of the Spirits; whence in the Beginning comes Vomiting, bleeding at the Nose and Ears, Stupidity and Speechlessness; and whence in further Process of Time, if happy and
proper

proper Means be miss'd of relief, comes Comas, Senselessness, Lethargies, Deliriums, Palsies, and Convulsions: For as the Original of a Nerve or Nerves, happen to be divided, obumbrated, or affected with any Heterogeneity of Particles, it is an undeniable Consequence; the different Sense or Actions they serve to, must suffer and fail, or be involuntarily and preter-naturally exerted.

Mr. *Turner's* remarkable Case confirms a great Part of what I have advanced; he says, that although the Depression in that fractured Skull he was call'd to, made a Cavity that would almost hold two Ounces of Liquor, (which must needs have made a prodigious Stretch on the *Dura Mater*,) yet that the Membrane appeared fair after the Operation. Further he says, that about the tenth Day from receiving the hurt, he perceived a greater Discharge on the Rowler and Dressing than could be expected, and upon search found a fætid Matter erupting thro' the *Dura Mater*, from the Substance of the Brain. Lastly, the Patient lived from *Feb.* to *May*, discharging more or less of this Matter, without any Symptoms of very ill boding Prognostick, till two or three Days before

before his Death, and then was seized with Convulsions.

The Learned assign the Cause of Convulsions to an Admixture or Meeting of Particles incongruous and disagreeable to the Nerves and nervous Fluid: This Incongruity as some Causes exist, (especially Poison,) lie in such Particles, being sharp pointed and vellicating, (bearing some resemblance to those external Instruments which more certainly effect it by pricking on them,) and seldom in Répletion or Exinanition, particularly as to these which succeed Fractures of the Skull: We find that Convulsions do not immediately seize, but after a Time, when it may be supposed the extravasated Blood has attained such an Heterogeneity.

They do likewise ascribe Apoplexies and Palsies to such an Effusion and Eclipse of the Spirits, tho' that external Force which advantages the Argument here be wanting.

From the whole therefore, I would make this Deduction; that if the Dulness. Slumberings and Stupidity, often seen at receiving Fractures, approach in their Nature and immediate Cause, nigh to that of an Apoplexy, (*i.e.* ^{*the Extravasation*} within the
Men-

Meninges) ~~and an Extravasation with-~~
~~out~~; then like that it is reasonable to
 conclude, Revulsions will contribute
 more to the Cure, than the Opera-
 tion of the Trepan can: and what con-
 firms me in this Sense is, that I have
 known both Fractures and Concussions
 (more especially the latter) to have been
 relieved and recovered without Trepan-
 ning, and that by large Bleeding, Enemas,
 Purges, Fontanels, and nervous Admin-
 istrations, and sometimes the natural
 Passages by the Nose and Palate assist to
 this Purpose; much more likely so to do
 when both Cold and Air is excluded,
 which all allow to be inimical to the
 Membranes and Brain.

Though not one in five of these Fra-
 ctures call in my Opinion for the Ope-
 ration; yet there are some Circumstan-
 ces that may make it more defensible at
 one Time than another.

Any extraneous Body sticking fast in
 the Bone, or a *Depression*, whether of
 one or several Pieces; the former can-
 not be removed, nor the latter eleva-
 ted (its said) without it: And besides, if
 at any Time an Extravasation may be ex-
 pected, it is most probably when the
 Bone presses on the *Dura Mater*; and,
 E yet

yet even here, unless a Man could forsake his Sight and Reason for Authority, there arises some insuperable Difficulties in an immediate Elevating any depressed Part of the Skull.

First, The depressed Part commonly remains firmly Contiguous with the whole, and being Solid will (like Iron or other hard malleable Bodies) require as much Force to straiten as bent it; besides in restoring to a Sphæricity we are narrowing the Diameter, which consequently augments the Difficulty.

Secondly, The Elevator it is attempted with, must be of fine Make, or it will not be so safely introduced between the inner *Lamina* and *Dura Mater*, and the finer the Instrument, the less Force can be used; or if more could, there is still left a greater Obstacle to contend with; for the *Diploe*, which divides the *Laminae* of the Skull, will intercept and hinder any effect of it on the outward Table.

The Tirefond (if any Thing) to fix externally, seems fittest to answer the End proposed; but if every way be thus perplexed with Difficulty to elevation, it may be asked to what Purpose is the Skull traphined at all, either when any
extra-

extraneous Body strikes there, or when depress'd? Why in the first Case the Body may be so fixed as to be past any other Method of removal: And in a Depression, there is Danger of Extravasation and Accelerating of fatal Symptoms, judged of by the Depth and bearing the Bone makes on the *Dura Mater*; in the first Case it is visibly wanted, and in the latter I believe it will be thought no ill Practice to repeat the Operation of the Traphine, until the whole depress'd or central Parts are removed, as more interminating of Mischiefs.

The Operation.

The Operation when undertaken, is directed to be near the Fracture, in order to raise any Part of the Bone depressed, depending, for the more favourable Discharge of what is extravasated: *In a close Place*, and by Candle-Light, Air according to the Aphorism, being an Enemy to the Brain and Bone: *Quickly* also, because procrastinating is dangerous, and *not on or nigh* the Temples or Sutures,

The Night before the Operation, we are to make our Way clear to the Skull, by extending either Line of that cross

Incision, (supposed to have been made at first,) and separating entirely one or more of the Angles as shall be thought requisite to answer the Purpose before us.

It is usual to stop the Ears with Cotton, for preventing an ungrateful Sensation, and then smearing the Crown of the Trepan with Oyl, for its easier Motion, apply it first on the Skull, with the Pyramid or Pin in, till an Impression be made, and then leave it out; lean hard on the Top with the left Hand, and turn round with the other.

The Trepan in the Beginning is best for dispatch and fixing the Crown, but the Trepine is safest to conclude the Operation with, because the *Manubrium* in this latter is fixed, and moved from right to left, and so back again at half Turns; the conveniency of which, for finishing beyond the other is, that we have a greater Command of the Instrument, and as the Perforation is found nearer through in one Part than another; we can accordingly bear more on the thickest Side to bring it to an equality, and the further we advance, the more this Care will be wanting, lest the Instrument at the End of the Operation should break thro' and touch the *Dura Mater*, (which, if
not

not Contiguous, yet swells by the Pulsation of the Brain, close to the inner Superficies of the Skull,) or else; least it break off some Particles that might prove equally Offensive.

The Teeth of the Crown touching the Membrane, indeed is in a great Measure guarded against, by the Diameter enlarging upwards; and the best Caution we can take against the latter, is, to remove the Instrument frequently, to clean it and the Skull from Dust with a little Feather-Brush, and to search the Depth of the Bore with a Probe, that so the Surgeon may cut equally, by being informed at what Point to press hardest.

Sometimes the Piece comes out entire, and sometimes the two Tables are divided; this the Operator will perceive, and take away the first when loose, before he proceeds on the other; and both removed, the Perforation is to be smoothed with a Lenticular, slipping first an unctuous *Sindon*, (*i. e. a Bit of fine Linnen cut round, and rather larger than the Perforation,*) whose Edges may slide between the Skull and Membrane, to catch the abraded Dust and Particles.

The Dressing to the Membrane (after the Operation is compleated) should be a *Sindon* dipped in the following Mixture made warm, and before introducing should have a single Thread thro' the Middle, for the easier bringing it away.

R. *Rexin. Com. ʒi. Ol. Rosar. ʒij. M.*
or R. *Spt. Vin. vel Tinct. Myrrh. Mell.*
Rosar. ana p. æ.

The Perforation must be fitted with a Dressing of dry Lint, and the whole Inter-space of the bared *Cranium* with others: To the Wounded Scalp some Pledgits of a Digestive (N^o 25) and over all a good Compress, and the Head Bandage. *The Head Bandage is a double Rowler, the Ends of unequal length, and beginning on the Fore-Head, you carry it behind; with the shortest End you pass backwards and forwards till the whole Head is covered, and the longest constantly going round binds at every Turn. Over this may be a woollen Cap.*

The Prosecution of this Cure may require some Variation of Method, which I shall animadvert upon in a Word or two, as it may respect the Membrane or the Bone.

From the Membrane (*Crassa meninx*) it must be noted, an Incarnation or Substance arises that fills the Perforation, and does in time harden to a Callus; It begins to appear in about a Fortnight, and is at first nothing but a Transudation of Blood from the Capillaries dispersed through it, and may be furthered or hindered in too quick a Growth, partly as we dress with the first or last of those Receipts above: How this Transudation or Supply after trepanning, comes from a particular Part of the Membrane, when the rest remains smooth, seems to be the wonted Compression of the Skull, being taken off whereby the air Globules circulating with the Blood, swell the Capillaries, and thrust out their Contents here.

The Bone being long exposed in these Cures, does usually exfoliate; but if we would not be wanting in our endeavouring to prevent it, then we must rasp, and pierce the *Cranium* a Line or two (or to the *Diploe*) at several Places with the Pin of the Trepan, and so a bloody Matter will exsudate, that in a little Time will cover the whole; Dressings assistant thereto, may be Pledgits of the following.

R. *Sp. Vin. in quo Pul. radic. Aristoloch. vel iridis Infusus. --- & Mell Rosar qf.*

If an Exfoliation cannot be avoided, we may allow a Month or five Weeks to perfect; the thrusting it off, then, is by a like fleshy Substance that arises underneath, and which daily encreases till the whole Vacancy be filled, and make one uniform Figure with the rest of the *Clypeum*.

When a new Flesh has spread the Membrane and Bone, the greatest Difficulty left to encounter will be preventing its Fungosity, either in the Hollow or the Lips of the Wound. The best Means for this will be Evacuations, Dieting and externally dry Dressings, filling the Space such a Height as the Bandage may press and resist its Growth; or if that avail not *Escharoticks*.

Lastly, as the Wound is filling, we should begin timely with our Desiccants, and heal from the Edges, *U. Diapomphol. Tutia*, or *Desicc. Rub.* will do. And when the Cicatrix is compleat, it remains on us for some Time to defend the Part against the Injuries of Cold, Blows and other Accidents.

First Example, ABR. MASCOLL.

This and the two next Observations happen'd in the Engagement, under that great General Sir *George Rook*, Anno. 1703. The Wound here was large, and laid open the Fracture to fight on the right sagittal Bone; but the Patient appeared frightened and melancholly with the Blow, and would not on any Representation of Danger, admit of the Operation, tearing off the Dressings were made to his Wound, for several Days together.

His Hands were tied to prevent as much as possible so delirious a Behaviour; he was blooded every Day for a Week, sometimes in the Jugular, and sometimes in the Arm or Foot, and had a Fontanel cut *inter Scapulas*.

Without any other Means the Wound in a Month was contracted to a small Compass, and the *Dilirium* off: But as it became seemingly healed, the Matter increased upon us, and having a soft Tumor about it, gave Reason to suspect a Translation of Matter from within, and of fore-boding very bad Consequences, but it proved only præcurfary of an Exfoliation, and in two or three Days having extracted

sted all the loose Bone, the Matter lessened, &c.

While I knew him, he continued troubled with a Giddiness, Pain in his Head, and epileptick Fits (the latter perhaps rather imputable to the Fright than Fracture.)

Second Example, JOHN USHER.

THIS Person was struck by a short Splinter of Wood in the fore Part of the Os *Sincipitis*, no Symptoms of a Fracture followed, but to appearance as well as ever he had been in his Life.

We dilated the Wound, in order to extract this Splinter with a Forceps or other Instrument, but finding our Endeavours in vain, and not being able to judge at what Depth it stuck, or the Accident that might ensue from leaving it any Time: We thought proper next Day to apply the Trepan, and found an odd Circumstance after the Operation; for the first Table being removed, the inner appeared depressed to a pretty large Circumference.

The Operation was repeated through both *Laminae*, till the Splinter was brought

brought away, and the deepest Part of the Depression; we found no Extravasation, and dressed the Membrane Perforation, &c. in the Manner has been already recited.

Fourteen or fifteen Days pass'd without any remarkable ill Symptom, and then the Patient was suddenly seized with a great Pain in his Head, soon followed with a Sopor, Stupidity and Loosness; I blooded him, gave an easy Purge of *Pul. Rhabar.* kept him to the white Decoction, and some volatile Smells; but about the twentieth Day, he was farther seized with a Palsy of his Tongue and left Arm, and died in twenty four Hours after.

From the former Instance we see the Probability of Success without the Operation, tho' attended with Symptoms, that are said to indicate it. And in this how fallacious the Dependence on it is, tho' there seemed nothing to struggle with more than a Skilful Management and Direction of the Operation it self.

Third Example, JOHN BULL.

WAS of a large Fracture and Depression by a Splinter: The Wound
was

was immediately stretch'd with a cross Incision, and next Day the Operation performed.

I pass'd the Elevator after finishing between the Membrane and Skull, attempting to raise the depress'd Part, but as much in vain, as if it had been laid under a Corner of *St. Paul's*; nor is it reasonable to expect otherways, for if a depressed Part has so firm a Contiguity as to bear the Pressure of Trepanning, how absurd must it be to think of raising it by so weak a Power.

Finding my self (not unexpectedly) disappointed, and that the Depression rested so close on the *Crassa Meninx*, that it was with some violence the *Sindon* could be thrust between, I resolv'd to take away with the Trepan, as much of the Depression as seem'd to interminate, and did at three several Perforations more. On the *Dura Mater*, immediately under the Depression were found some very small Globulations of Blood.

We gave the usual Dressings to the Membrane and Bone, and in a Fortnight found these several Alterations; *those little Coagulations to maturate off; the Dura Mater to spread with a ruddy Substance; The exposed Part of the Skull*

to grow discoloured; and, after a longer Communication with the Air and Medicine, came (to the best of my Remembrance) more flexible, and yielded (the small remaining depressed Part) to elevation: Whence I would ask, whether when Exfoliation is inevitable, ^{it is not} it is not better to assist and forward the Molli-
fication of the Bone, by unctuous Applications?

Our Business in the Progress of the Cure, was to prevent too quick an Increase of Flesh, and to wait for the Exfoliation: The first we helped by dry Dressings and a Compression, the latter Nature effected in about thirty Days: A new Incarnation from beneath thrusting it off, and gradually filling the Vacuity.

After Cure he continued the remainder of the Voyage, subject to Pain and Vertigo.

Fourth Example.

I WAS sent for to advise about a Lad that had fell from the Main-Yard of a Ship; and who was supposed to have fractured the Skull, he having vomited, bled at the Nose and Ears, and besides lay speechless and insensible. On the fore Part near the *frontal Suture*

Suture was a small Wound, the only hurt that could be perceived thro' the whole Scalp, which was laid open by a cross Incision a considerable Length, and the Patient prepared by Bleeding, for the Operation.

Not discovering the Fracture, it was however omitted some Days, untill a Continuance of the Symptoms made us apprehend the utmost Danger, and put us on the Performance to avoid Reflection the constant Attendant of Miscarriage and Omission, but found the *Dura Mater* clear of any Extravasation.

Our Dressing was a Sindon out of *Sp. Vin.* and *Mell. Rosar.* a little Ball of the same to fill the Perforation; and all the rest of our Dressings Dossils of dry Lint, excepting only a large Pledget spread with Liniment, for the easier bringing them off: Compress and Bandage.

About a Week after the Patient having been often observed to lift his Hand towards the hinder Part of his Head: We found there on search, a Tumor with Matter collected in it, as appeared on opening; and what was more surprizing, a Fracture that gap'd wide enough to pass a Probe through, and stretching a great Length on the *Os Occipitis*: Here
We

we applied the Traphine again, imagining with Reason the Discharge was *ab intra*, and found some Maturation then, and inore next Day: That the Membrane should be punctured, is plausible and practicable, for the Relief of the Brain, which thus is in Danger of Sphacelation, but whether in the present Case it could turn to any better Advantage than the imperceptible Passage that Nature had already made, was a Question? We thought not, and omitted it; shaved the Head, blooded, and used spirituous Embrocations, and internally Cardiacks. He continued Speechless and emaciating until the third Day, after the last Operation, and died.

Fifth Observation.

A Concussion of the Brain. A young Lad standing in a Boat under the Bow of a Ship, a great Dog accidentally fell from out of her, and brought his Head and the Boat's Thwart together; he bled at the Ears and Nose, and kept doing so by Intervals for twenty four Hours; speechless also and insensible, yet no Wound or Appearance of Hurt through the whole Head.

I took

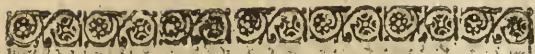
I took away ʒxij. of Blood immediately, had the Head shaved, and rubb'd his Temples and Nostrils with an equal Mixture of *Sp. Lavend.* and *Sp. Sal. Vol. Ol.*

The next Day I blooded him again, applied a large Vesicatory to his Neck, and made a contemperating Julap ; but this he constantly regurgitated as often as he attempted to swallow.

On the third Day I repeated Venesection, injected a stimulating *Enema*, and towards Evening he spoke, which was the first Time from his receiving the Hurt.

We daily after this found some Progression in the Recovery, but the Stupidity wearing off slowly, I cut him an Issue, and left him to the Use of Errhines, and have Reason to think they were of no small Benefit.

I could instance others, but they bearing so great a Similitude both in Symptoms and Cure, with this last, it would be Prolixity to repeat.



CHAP. II.

Of FRACTURES.

FRACTURES, Simple and Compound, are some of the commonest Cases in Surgery (especially in War,) and yet the Subject hitherto but transiently and insufficiently handled, as though not liable to any extraordinary Accidents, or required much Skill in Cure.

The following incidental Remarks are designed for supplying this Deficiency, and took their Rise from that excellent Order in the Navy, of Surgeons keeping Journals of their Practice; an Order that seemed at first designed to give Preference to Mens Qualifications, but at present has no other View in it (either by the Physician or the Hall) than retaining some little and inconsiderable Fees that are a Reproach to them. I have altered the com-

mon

mon Way of Process, where reasonable, and chiefly insisted on the Rise and Nature of attendant Symptoms, which, in my Judgment, evidently proceeding from the Managing and Treatment of Fractures, have there their safest and best Remedy.

Division. Fractures are Simple or Compound.

Definition. A simple Fracture is defined by Authors (a Solution of Continuity in the Bone,) and, in Respect of Figure, it may be Oblique, Transverse or Longitudinal.

It alters into a compound Fracture, and is strictly so called when the *Cuticula* is broke through by the End of the Bone thrusting outwards, or by Wounds made to it ; but may properly also have that Appellation where there happens a double Solution of the same Bone, or is accompany'd with a Luxation.

Causes. Some reckon a Fracture may be produced from an internal, as well as an external Cause; the former is alledg'd from some Examples in the *Lues* and Scurvy, where the Blood has been found degenerated to such a Degree, as to corrode the Bone, or consume it in the same Nature as Consumptions are observ'd to do

do the fleshy Parts. I have seen a Thigh Bone emaciated to half the Bigness of its Fellow, and a Jaw Bone not above one Third of its natural Bigness. And there is an Instance in the *Biblioth. Chirurg.* from *Dominique Gayliard*, of the Bones all turning cartilaginous, but yet none of these are properly brought under the Species of a Fracture ; at least they require a very wide and different Process from those externally occasioned, and therefore out of our present Enquiry.

But external Causes are evident, such as Blows, Falls, Pressure, Wrenches, or Gunshot ; and, in my Opinion, one or other of these must always concur to dis-unite, and make a Fracture. There is one rare and extraordinary Cause of this Kind, and that is, a violent Contraction of the Muscles ; this, *Mr. Douglass*, in his Lectures of Osteology instanced to be true in two Cases there shewn ; one, of a Porter that fractur'd a tranverse Process of the *Vertebra*, by stepping over a Kennel with a Burthen, and another that broke the *Os Humerus* by slinging a Stone.

Where best. Fractures happen best in middle-aged People ; very young or old Folks have each their Inconveniency ; in

the first, a Quickness of Sensation and Circulation makes the Pain more acute, and subjects them in the Beginning to a Fever and its Consequents, and, in the Progress, too liberal a Supply of Nourishment makes the Fracture more obnoxious to a Deformity, or bunching out. In old People the reverse of this ; for in them the Bones having arriv'd at their utmost Extent and Solidity, grow dry, and the Vessels importing Nourishment being almost obliterated, there is always a Defect in the Generation of *Callus*.

A Fracture may likewise be said to be best when the Solution is but in one Place ; *when* it is not near a Joint, and when it happens where there is two Bones, and only one of them broke (as in the Cubit or Leg,) a Limb requiring less Art then, either to reduce or preserve it so, because the Firmness of that Bone which remains whole, facilitates the Work , nor is this commonly subject to so severe Symptoms as where the Bone is single (such is the Arm or Thigh;) but especially the last, because here the Muscles being large, the Limb cumbrous and more expos'd, the Prevention of Accidents, and a good Conformity, are more particularly owing to Care and Art.

Fractures

Fractures are also better in the Arm than Thigh or Leg, because the Position of the inferior Limbs is more disadvantageous and uneasy, and the Quiet of them necessarily more disturbed.

Signs. Among what are reckon'd Signs of a Fracture, I can separate but two peculiarly so. The first is a sudden Impotency and Inaptitude of the Limb to move it self, which will immediately succeed a Solution of Unity ; for Bones being the Prop and Foundation of Motion, it follows the Muscles, incerted into them, must be necessarily render'd useless, but then it is an Error of those who expect the Parts distant should be under the same Incapacity, such I mean as moving the Toes, on a Fracture of the Leg or Thigh, or Fingers in that of the Arm or Cubit ; for, let those Bones be never so shatter'd, it will not destroy the Motion of these, because they imply no Disturbance to the Fracture which tho' it affects all the Joints above, does only deprive the next below it. The second and infallible Sign of a Fracture is, when on handling the Limb we feel the Ends of the Bone to crush and pass by one another, without Stability to resist any Motion is made with it ; and of this,

F 3

unless

unless we have lost our Feeling, we can hardly be deceived; it is so much depended on, that without it neither Pain, Tumor, Distortion, Shortness of the Limb, or any Disparity with the sound One, (though reckon'd Symptoms of a Fracture) are sufficient Indications of themselves, because they all severally do happen to the Limbs on other Accidents, and, in their Turns, may be separate Distempers of them.

Intentions of Cure. A Fracture being known, the Cure of it lies principally in the Treatment of the Part it self; the Method I propose for it, I shall reduce to two general Heads, under which may be compriz'd all other subsequent Intentions of Cure, and those are ~~two~~; first, *Reduction*, and secondly, the *preventing or correcting of Accidents*. These, and these only, are principal Intentions of Cure: Extention, Deligation, and the like, though they have their proper Mention, are only Accessaries and Assistants of these, and (as many other Circumstances may) contribute their Share to a good Reposition, Quiet and Ease of the Limb. *By Reduction* is meant the smooth and even Reposition of the Ends of the fractured Bone, and is always to be done as soon as possible,

possible to prevent the Pain, Tumor and Inflammation that is expected, and will certainly follow, if deferred long. In order to this, Extention is absolutely necessary to restore the Distortion of the Member to its natural Conformity, and is best done with your Hands, both because as great Extention may be made with them, as any Fracture can require ; and also because the Violence of any other Instrument might help, on those ill Accidents it should be our Care to prevent.

Extention. We perform it by placing two Assistants, the one above, the other below the Fracture ; the Business of the first is to hold the Limb steady, and at the same time to make such a Contra-Extention as may hinder its giving way to that greater Extention that must be made below, by which the Business of Reduction is chiefly to be compleated. This latter Part should be strong, gradual and steady ; and when your self, by feeling, shall find it made to a Degree fit for rejoining, you are, by the Application of your Hands, to press and replace the Ends of the Bone *smooth and even.* And take this particular Notice with you, that it is your feeling now that must afford you the true and only

Signs that you can or will have of a *Smooth and even Coaptation*: For, as to its answering the sound Limb, in its Shape, Length and Figure, with the Pains being abated after the Dressings are on, and the Patient laid in a proper Place and Posture, they are all very fallible.

Pain, every one knows, will unavoidably accompany a Fracture, and to no small Degree affect the Patient, though it be well reduced; and if it be not so, yet the Appearance of Ease, when the Limb is reclined on a soft Bed and at rest, may deceive us into a contrary Belief; for it is only with moving that it becomes most sensibly affected, and this it will be, whether it be well or ill reduced.

And secondly, as to its Resemblance with the sound Member, I cannot form to my self any sure Rules of judging after the Dressings are on; for, what Likeness soever they might have had before, it will be lost then, and in this we are never so frequently deceived as in a Thigh; for Pain, with the Weight and Unweildiness of the Member, always sinks the Patient to the hurt Side, and imposes on us a false Length; so that I have seen a Thigh, which, by its Appearance
in

in a Cradle, has been merrily expected longer than the other, ~~and~~ yet prove, when come to be made Use of, an Inch or two shorter. But to return, Extention performed, and the Bone re-placed, without any perceptible Inequality, Reduction is finished.

2d. *Intention.* The other general Intention of *preventing and correcting Accidents*, I design very comprehensive, not only to include the Dressings and Management that is instantly required, but to take in the whole Process of Cure from Reduction to Recovery. And 1st, the Prevention of Accidents will depend very much on a well ordering of our Dressings, which take as follows ;

Supposing the Fracture reduced, and Assistants still holding the Limb, we begin our Dressings by enwrapping the Part round with a Compress of suitable Largeness dipp'd in red Wine, or Oxycrate, or else, what some think more preferable, an Emplaister ; mine is generally *Empl. ebolo. Fiat-ex Diapal. acet. Bolo Ol. Rosar. M. S. A.* or the Defensative N^o. 131, in either of them, I always chuse to add a little Turpentine, because its Stickiness brings and preserves the Flesh tort about, and fits it the better for Bandage.

The

The Rowlers are next in course ; the Number universally adhered too are three, two of them single, and one double, and has all the Advantages that any Rowling in the Cure can have ; they are used according to *Hippocrates's* Direction, thus.

The first single Rowler is begun with three Turns at least, about the Fracture, and finished upwards with Edgings ; the other single Rowler is begun with the same Number of Turns about the Fracture, but rowled to the contrary Hand, and finished downwards.

Over these comes the double headed Rowler, begun also like the former, on the Fracture, and has one Head carried and finished upwards, the other downwards : These Rowlers are to vary in their Length, in Proportion to the Bulk and Largeness of the Limb fractured ; are to be made of Linnen, (as least stretching,) and to be used in such a Degree of Tortness, as may support the Fracture, and yet not endanger ill Symptoms. A Medium not attainable but by Practice.

Compresses and Splints follow ; the first are made of Linnen, the other of Past-Board or Wood, and armed with
Tow ;

Tow ; their Number, Length and Breadth, are to be more or less, according to the Part fractured, and so placed, as to bear equally and fill up any Vacuities or Slenderness the Limb may have in one Part more than another, and then fastened with four or five Tape Ligatures, beginning on the fractured Part; among these Splints, (whether the Fracture be of the Arm, Leg or Thigh,) there should be always a very large one of Past-Board, for the under Part of the Limb, rounded at the Edges and armed with soft Tow, (if need be,) to sit easy in the *Axilla* or *Inguine*, wet in Oxycrate, that it may mold to the Shape of the Limb, and should enclose so much of it as that the rest of the Splints used (which need not be above two more) may be moved and shifted, if Occasion require) without Trouble to the Patient.

Some chuse to wet all these Dressings in *Oxycrat cum albumin, Ivorum*, which I cannot acquiesce in, because, I think the Cold and Weight retained by it, induces more Pain, and that as they become dry, they grow slack and expose the Fracture.

When

When the Dressings are finished, the Position of the Member requires our next Care; for it often happens that altho' a Fracture be well reduced, yet the careless and unequal Scituation of it after, subjects it to the same Misfortunes as an ill Reduction would have done: But as Direction, for this must vary according to the Limb fractured, it will be more usefully observed under the Notes that follow on each particular; only this I shall take Notice of at present, that the same Splints, (tho' there be a double or a compound Fracture,) should be only on necessity admitted to come above and below the same Joint; for tho' such a large Splint as I here mean, is of great Support and Service in the inferiour Limbs, (the Thigh in particular,) yet, as we find the Continuance in one Posture only, will frequently induce a Stiffness and Rigidity in such Joint, and this the more the Patient is in Years; so when we lend a helping Hand, and fix it immoveably as it were by Bandage and Splints, we have Reason to fear an *Anchilosis* by it: The *Synovia* in the Joints, by so long a Stillness and Inaction, glueing the Heads of the Bones like a *Callus*;

I have

I have seen the *Tibia* and *Femur*, the *Ulna* and *Radius*, from such a Cause, so cemented, as to appear like one continued Bone.

I come now to account for, and correct in the best Manner I am able, such ill Accidents as in the Course of Cure are the Attendants of Fractures, to wit, Pain, Inflammations, Fever, Tumor Abscess and Mortification.

And first of Pain, this is an inseparable Concomitant of a Fracture, and therefore never to be considered or attended to as a dangerous Symptom, till it becomes more than ordinarily acute, and then as it is productive of every other Ill a Fracture can suffer under, (Inflammation, Fever, Tumor, Fluxion and the like,) it is worthy our exactest Industry to search the Cause, and prevent or correct it.

The common Cause of Pain here, is the Solution of Unity, but what particularly aggravates, will be found either from the Fracture's being waved into sharp Points, or from some Portion of Bone entirely separated, either of which Accidents, as they prick and vellicate the Membranes where they lodge, fail not to excite this Affection, else it may be
the

the Effect of too hard Bandage; too hard Lodging; ill Reduction or Position; or finally, a bad Habit of Body, joined to either, will from small Beginnings, improve to a Fever; for Pain, which in a great or less Degree, is the certain Consequence of every Mismanagement, is always attended with a Contraction of the pained Part, which contraction, according to the modern Hypothesis, extending to all the Parts of the Body, lessens the Secretions, or, which is the same Thing, acting as a Stimulus, divides the Blood into smaller Parts, either of which increases its Quantity which is the immediate Cause of a Fever.

Pain and Fever constantly follow one another, like Cause and Effect, and by removing one, we seldom fail to subdue the other; accordingly therefore as any of the afore-cited Causes shall take Place, we must diversify our Remedies: Any separated Portion of Bone, that we think cannot be replaced and reunited, we must cut too and take it away; Lodging or Bandage too hard, we must ease; ill Reduction rectify by going over our Dressings again; and if a Dyscrasy and ill Disposition be the Cause, we should endeavour to amend it with a Course of gentle

gentle Catharticks and Alteratives, because not only a Fever will be the Consequence of increasing Pain ; but we ought to suspect Tumor, Fluxion, Inflammation , Apostemation, and even Mortification.

A Tumor here is either the Effect of Pain ; of too strict a Bandage ; an ill Habit of Body, or *Plethora* ; or it is from the general Imbecility of Nature, as in aged ascitical or consumptive People. When these latter Causes exert, the Swellings are only *Ædematous*, signifying a general Weakness, and will disperse very probably from any particular Part, by Fomentations, and as it regains Strength. But, when the Tumor happens through ill Reduction, or future Mismanagement ; an ill Disposition, or a *Plethora* : It is as one or more such Causes vigorously concur, attended with a Fluxion of Humours ; and as the Blood is saturated with acrimonious or bilious Particles, becomes a Phlegmon or Erysypelas, which, again may not (impossibly) end in Apostemation, Abscess or Mortification.

I have already observed, that the best Preservative, is the recovering a good Reduction ; a smooth Application of our Dressing, and an easy, even Position ;
But

But though they are the solid Foundations of Success to a Surgeon, yet the general Indications for correcting them, when present, must not be omitted; I mean such Administrations as tend to the Mitigation of Pain, and Revulsion of Humours. V. Section, Enemas or Laxatives, Anodynes, and a strict Regulation in the six N. Naturals.

R. Decoct. commun. pro Clysteribus
℥x. Ol. Cham. ℥ij. Mell Mercurial. Syr.
Violar. a. ℥j. Ol. Anisi. ℥℥. M. F. Enema
injiciendum.

R. Decoct. hujus ℥xij. Syr. Rosar solut.
Butyr. sali. sacch. Rub. a. ℥j. Ol. Anisi
gviij. M. pro Enema.

R. Aq. Cinnam H. ℥iij. Aq. Epidem.
Syr. de Mecon. a. ℥℥. L. liquid. gx. M.
pro Anodyn. hora somni sumend.

R. Aq. Cerasor N. ℥iij. Aq. Cinnam.
F. ℥℥. Syr. de Mecon. ℥vj. L. liq. gxvj.
hora Decubitus exhibend, & repetatque
pro tres vel quat. Diebus.

Also to direct their Diet may be low, and such as is of light and easy Digestion, (as Gruel or Panada,) abstaining from Flesh; and for a common Drink, Sack-Whey, or the following. *R. Aq.*
Hord. lbj. Sacchar Albiss Sp. Nitri vel Ol.
Vitriol a. q℥. ad gratam saporem.

R. Sacch.

R. *Succ. Limon.* ℥ij. *Aq. Hord.* ℥ij. *Sacchar Alb.* ℥j. *M. pro potu Ordinario.*
 If the Accident should still encrease, and the Patient be rendered weak and faint by them, some Alexipharmick should be exhibited.

R. *Pul. e. Chel. C. gr.* xvi. *Spec. Diamb. s. o. gr.* xij. *Conf. Alkerm. s. o.* ℥ss. *M. F. B. Bolus sexta quaq; hora sumend. Superbib. Cochij. Fulap. sequent.*

R. *Aq. Cerasor N.* ℥viii. *Aq. Peon. C. Theriac. a.* ℥ss. *Margarit ppt.* ℥ij. *Sacch. albiss q. s. F. Fulap.*

Or, the *Pulvis Alexiterius*, and *Fulap. Volatile Ratcliffianæ.*

We should likewise, for obtaining this End, relieve the Limb of all that Lumber of Dressing that by its Weight may incommode it ; preserve it in a quiet and steady Position, and prohibit the Encrease of Fluxion by a Defensative on the Joint next above the Fracture, and a cooling and discutient Ointment and Emplaster to the Part it self, using also now an eighteen Tail Bandage, instead of the the circular, for the Conveniency of applying these Topicks daily.

R. *U. alb. & populn. a. p. æ. partem Exungitur & circa Tumorem Empl. Cerati Diapalm.*

For a stronger Discutient the following Cataplasin,

*R. Fol. Althæ Mij. Sem. Lini Fænu-
græc. a. ʒss. Flor. Chamem. Melilot a. ʒij.
fiat Cataplasin addendo Ol. Rosar. ʒij.*

If Erysipelatose.

*R. Succ. Sambuc. Ol. Lini. a. ʒij. coq.
ad succi Consumptionem deinde adde tan-
tillum Lithargyri / vel R. Sp. Vini. ʒiv.
Sacch. Saturn ʒj. M.*

If it be simply a Tumor, (Ædematous) we must consider what Remedies we have against Age, an Hydropical, or weak and hectick Disposition, that Occasions it, and the quicker Foresight we have of them, the better able are we to fence against Dangers, which tho' not threatening, as to the Patient's Life, may, as to the Use of the Limb. I shall, previous to the Remedies, lay down these two Propositions.

First, That ædematous Tumors do soon appear in imbecillitated Constitutions; for by whatever Cause the Blood becomes depauperated, whether thro' Age or other chonical Distemper, the Juices will fluctuate but slowly through their Channels, and the solid Parts having lost also of their Tensitý, it cannot but
happen

happen that every light Compression will obstruct their Circulation, and cause a Tumor.

And secondly, such Tumors will be of longer Continuance, and more Troublesome to dissipate, than the others by Fluxion, because the *Fibres*, as they have been a less or longer Time stretch'd beyond their natural Make, do lose of their vibrating Power; or in other Words, the Tone of the Part is weakened or destroy'd.

We are therefore by heeding to these Propositions, more easily led to a Remedy, and should no sooner have Apprehensions of the Debility and Weakness of a Constitution, but we should immediately slack the Bandage, and change it for the eighteen Tail, tho' never so small a Distance of Time from the Reception of the Fracture, that the Blood and Spirits may have a freer Recourse there, of which these congested Tumors (as I have said) always argues a Defect; and there will be no fear of a Distortion from this Liberty, because the Coldness of their Constitutions suppresses the Inclinations to Motion and Uneasiness, which are more familiar and perplexing

in brisker Circulations; and the more the Tumor spreads and increases, the less will be their Incitements to disturb it; insomuch that I have wholly laid aside Rowlers, and trusted such Fractures to Compress and Splints, contriving only the easiest Position possible, and helping Perspiration and Strength forward, with warm Bathing, spirituous Embrocations, and nourishing Diet.

R. Absynth commun. Althæ, Centaur. Hyperic. a. Mij. baccæ Juniper ʒj. Semen Fenic. Carui a. lbj. contundantur semina omnes in Aq. Commun. Cong iiij. coquantur ad tertiam partis Consumptionem Colaturæ adde Sp. Vini. qf. & servetur; post usum Foti utimur Embrocationem.

R. U. Dialthæ Sp. Vini a. ʒj. Ol. Absynth. g. vj. / vel. R. Pingued human ʒij. U. Nervin. ʒf. Ol. Euphorb, Petrol. a. ʒj. M. Internally it will be proper to keep the Body open, and prescribe good Stomaticks and Diureticks.

R. Pul Sennæ, Crem Tartar a. ʒj. Ol. Anisi gr. viij. Elect. Leniti. ʒj. M. pro quatuor dosibus Vespertinis Assumendis.

R. Vin. Alb. lbij. sal Absynth ʒif. haustum ad Libitum sumend. / vel. R. Vin. Alb. lbij. Ciner. Genist. ʒj. filtretur add Tinct. Lign. Saffaphr. ʒf. M. / vel. R. Zedoar

doar. Galangæ, Cyperi, Calam. Aromatic. Nuces Mosch. Cinnam. Macis a. ʒi. Cubeb. Caryophill a. ʒj. Croc. Anglic. ʒj. nodu'o ligat. stent frigide infusione Vin. Alb. Cong. 1. tempore usus filtretur. capiat haust mane jejuno Stomacho & quarta Pomeridiana. Vel. R. hujus Vin. ℥j Rhabarb. ʒij. Infunde & Colaturæ, capiat Haustulum omne mane.

Should there be Danger at last, of a Mortification from the Encrease of this Tumor, or from the Exasperation of Symptoms in a Phlegmon or Erysypelas, or the Greatness of the Contusion, I have considered the proper Applications at the End of the Chapter of Amputations, to which I refer.

Distortion. There is another Accident behind, to which Fractures are frequently subject, and that is Distortion: This happens by ill Reduction at first, or Mismanagement afterwards.

From ill Reduction, when the Ends of the Bone do not answer *Fibre to Fibre*, and this, in all likelihood, they will be the widest from where the Obliquity of the Fracture is greatest. There is likewise another Evil, which I think is not commonly meant when we speak of a Distortion, tho' it be a very great one,

and may not only produce the ordinary Effect of it, a Weakness and Lameness, but be a Misery; and that is, when the superior Part of the fractured Bone overhangs, and for want of meeting the other to intercept the Superfluity of Nourishment, shoots forth into Processes; I have seen them in a Thigh Bone to the Length of six or eight Inches.

From Mismanagement, a Distortion happens, and that chiefly in the Thigh or Leg, when in our future Attendance, we neglect the Position, and so in Proportion as it is wreathed to one Side, or the Heel is raised or let fall too much and inadvertently continued so, the Edges of the Bone meet closer in one Part, and recede in the Opposite; which Space or Vacuity filling with the Matter of a *Callus*, brings a Curvity. As this Accident is seldom heeded, or known 'till late, so it is past any other Remedy, but Breaking again, which is looked on as the sole Resort.

The first Time of opening a Fracture, is directed by Mr. *Wiseman* and others, to be the seventh Day from Reduction, assigning these two Reasons. First, That if the Bone has been ill reduced, or any other Mistake made, it is then seen and
may

may be rectify'd. And secondly, there is Opportunity to bath the Part, and allay the Itching that has arisen there through the Detention of Humours.

The Purposes here are right, but the Seasons of pursuing them, strangely mis-timed, and would be ill Practice to observe; for first, if it be apprehended the Bone is ill reduced, we should correct the Mistake sooner, even the same Day. An Adherence to such a superstitious Septinary Period, when our Process has been wrong, is only inviting the very Accidents we are careful to shun: And as to itching, it does not happen, or is not troublesome till Pain abates, which we know is as the Part strengthens, and the *Callus* confirms; But grant it should, I cannot think the easing of that, is to be put in Competition with the hazards of displacing and distorting a Bone; as for Instance, in the Thigh, how impossible, almost, is it to open at seven Day's End, without destroying our former Reduction, and all that has been done for the Patient's Security.

It may be then ask'd, at what Distance of Time it will be proper to open a Fracture? to which I answer, not untill a *Callus* has knit the Ends of a Bone,

which, for a common Computation, may be in about three Weeks. Some extraordinary Accident may supervene, that seems to be of greater Consequence, and exacts Attention before the Fracture: Such may be very acute Pain, Inflammation, or other aggravating Symptoms already taken Notice of, But what is the most common, tho' insufficient Precautions for it, is the Slackness of the Bandage, when a Fracture receives no Support from it, a Defect that I have always thought more safely supplied by drawing the Splinters tort from Day to Day.

Callus. A *Callus* is the Medium that unites the divided Bone, it is a white thick viscous Substance part of the *Succus Nutritivus*, supplied there by the *Fibrillæ* dispersed tho' the Substance of the Bone and is a Juice that by its being so continually at Hand in Fractures, has probably a constant Circulation through the Bones; for if it was to stagnate, I see no Reason but that it might harden to the same Degree it does on Extravasation, and so prevent by this Obstruction of the Passages, any fractured Bone from ever uniting; but whether this be so, or that the Marrow they contain by distilling or sliding through their Porosity,

sity, from the interior to the exterior *Lamina*, be the supply I cannot resolve. The former which is Dr. *Havers's* Opinion is most probable, and that nutritious Vessels run thro' their Substance; which by their Discontinuity where a Fracture happens, the Nourishment they contained naturally ouzes from their small Orifices and spreads or extravasates it self round the Edges of the disunited Bone, cementing them with an easy Adherence only the first Days; but in a longer Time the thinner Parts being dissipated by the Heat of the Body, the Remainder becomes so hard a Substance, that the Bone sooner breaks in any other Place, than there again; the Reason of which may be also (if the strength of a Bone more in one Place than another, be as its Diameter) that it becomes thicker there.

From the Nature of this Supply, let us consider of the proper Means to generate a *Callus* and how we are to correct its Defect or Luxuriancy.

For obtaining this uniting Substance, there are two controverted and very opposite Opinions, in respect to internal Means, the one would help and forward its Generation by incrassating Medicines,
such

such as * *Lap. Osteocolla*, and other shelly and testaceous Powders, and the other by attenuating Medicines.

The latter of these seems to have the greatest Weight of Reason; for as the *Fibillæ* importing this nutritious Juice, are so small as to be almost indiscernible; such Medicines as attenuate must give it an easier Transit, and sooner accomplish the End; Experience confirms this, since we find Bones soonest unite in young People, and in Winter Season, which I think can be for no other Reason than that the Circulation being quicker, the Particles of Blood are by that Means more comminuted and fitter to pass these slender Fibrils into the Nourishment of the defective Part.

On the other Hand, incrassating Medicines, whatever Faith any of our fore Fathers have put in them, (particularly *Osteocolla*, which some have said, would knit a Bone in four Days Time, I cannot but think must impede this Work

* *Lemery* says, 'tis called so from *Osteon* and *Colla*, which is as much as to say Bone Glew. It is a chalky white Substance, the great Pieces hollow, (the small ones not so) and grows at the Roots of Trees; there is two Sorts, *English* and *Palatinate*.

by thick'ning a Juice too unapt before to pass thro' so fine Capillaries, and particularly in aged People, for their diminish'd Heat and Circulation is already so great an Impediment in the forming a *Callus*, that sometimes neither Frictions, strong Fomentations, slack Bandage, a nourishing Diet, and the like proper Means can prevent an Irremediable *Atrophia*.

Authors also for this end, order nourishing Diet, such as strong Broths of Veal, Kid, &c. and externally Emplasticks, such as *Empl. strict. Paracels Oxycroceum*, *G. Thus Myrrh*, *Labdanum Aloes*, and the like mixed and apply'd Plaster-wise: These by obstructing Transpiration, and retaining the warm *Effluas* are supposed to encrease the natural Heat, and promote a *Callus*; but the best Practitioners, (altho' they do not altogether shun their Use,) yet esteem them of little Service; and that the best, if not the only help necessary and conducive to that End is the Quiet and Ease of the Limb.

There is an opposite Fault to this Deficiency of *Callus*, and that is its abounding too much, for which I see nothing but Pressure with a thin Plate of Lead, strict Bandage, and a Retrenchment in
the

the Patient's Diet, can be of any Service, an *Empl. de Cicuta, de Ranis cum Merc.* or such like may be apply'd also for this end, tho' they seem of inferior Efficacy.

Notes on the Finger.

A FINGER is seldom fractured without a Wound, and must be differently treated, as it is the first second or third Phalanx.

When it is the third Phalanx, or Extremity that is fractured, we need not be hasty in the Extirpation of that Joint, how irrecoverable it may appear at first, for Nature sometimes exceeds our Expectations, and no doubt it is better a Joint be preserved (tho' fumbly cicatrized) then lost; nor needs there any other Regard here, then what the Wound would have required, had there been no Fracture, excepting only, that we change the Rowler one Day to one Hand, and the next to the other, to restore the preceeding Deflexity.

But if it be the Middle, or the first Phalanx that is fractured, there is a little more care and Consideration wanted, both to replace the Bone, and to preserve it so.

And

And first, the streightning of a Finger is the replacing of it; if any Particle of Bone is an Obstruction to this, or separated, it is to be removed; and if the Wound be so large as to shew the Bone, it should be covered with dry Lint, or a Dossil pressed out of *Tinct. Myrrh.*

To secure the Fracture, I use only an *Empl. Compresses* and two *Splints*; rowling I think inconvenient here, in that it wreaths the Finger aside, and makes a distorted Union: The middle Part of the *Empl.* is to be applied on the Wound, and to come round the Finger, (first cutting out so much as may leave room for Dressing.) The two small Splints with each a Compress, I place on the upper and under Part; more than these would be troublesome, and indeed cannot be used, especially in the first *Phalanx*; but that the Pressure may not be unequal or give room to the Bone's receding that Way, we supply the want with more little linnen Compresses one on each Side, and having tied the whole with a couple of narrow Ligatures: Place it to the Breast to be out of the Way.

This

This Dressing has all the Benefit that can be proposed; it is of Support enough, keeps the Wound from the injury of Cold, and by only untying the Ligatures, they are all easily removed, and the Wound presented for your Inspection.

Notes on the Cubit and Humerus.

IN Fractures of the *Cubit* or *Humerus*, the Elbow must always be kept clear of the Dressings that the fore Arm may bend to rest easily in a Sling, which is to be placed to the Breast, and the extremity a little elevated.

This is required in common, but in their particular Treatments they may have a Variation to their Advantage; as for Instance, the *Cubit* requires not so confined a Posture as the *Humerus*, but may be suffered to play from the Breast a little, without the Fear of any ill Consequence ensuing; it is on the Advantage of this free Position, and its being so little affected with the Motions of the Body,) that makes it of the least Disturbance to the Patient, and subject to the fewest ill Symptoms of any fractured Limb; but the *Humerus* being a single Bone, ought to be more steddily fix'd, to prevent,

prevent the ill Accidents a loose Scituation will expose it to; and if broke near its Juncture with the *Scapula*, it must be treated like a Dislocation; I shall give one Example both to explain this Case, and farther illustrate the Truth of what I have before advanced, in Relation to the Accident that beset it.

I had a Fracture of the *Humerus* sometime ago, as near the Juncture as I think could possibly happen, after an Extension and Reposition of the Bone, I apply'd a defensative *Empl.* a large Compress that enclosed the whole Joint, some soft ones of Linnen in the *Axilla*, and the Bandage called *Spica*, pinning down the Arm, close to his Side, and raising the *Cubit* in a Scarf to his Breast; nothing of Splints could be used here, nor do I think them or any Thing harder or uneasier then what I have mentioned, can be forced on such a Fracture, without disturbing and rendering the Contributions of Nature abortive.

The Patient being old, and at that Time in an hydropical State, a very large œdematous Tumor quickly spread thro' the whole Arm, yet, suffering very little Pain from it, which whether I might Account as a Sign of good Reduction,
or

or the Largeness of the Tumor deadening the Sense, I could not then tell; however, I took off the Bandage, believing that might be one great Occasion, and with Hopes a Fomentation and Spirituous Embrocations might help towards its Dispersion, but was in a few Hours obliged to re-apply them, the Limb becoming (as he expressed him self, so heavy and painful a Load, that he could not endure it.

I assisted these external Applications, by keeping him to Diureticks and good Stomachicks, throwing in a Purge now and then, as his Strength would bear; but the Weakness and Tumor, for all this, continued, and stretching the *Cuticula* into Vesicles at several Places, and at several Times, for the Space of three Months, at length a *Callus* having formed, a Diminution of the Tumor gradually succeeded, and after a long tedious Use of Fomentations and Spirits, it was brought to some Share, tho' never wholly to its Use and strength.

Notes on the Clavicle.

FOR the Reduction of the Bone, the Patient is to be seated on a Stool, while

an Assistant behind with his Knee up the Back, and his Hands on each Shoulder, pulls both backwards, at which Extention the prominent Part of the *Clavicle* may be easily pressed down to join with the other.

After Reduction the *Cubit* must be flung to the Breast, (as in the Arm,) and the Patient very careful in its Quiet and Repose, for tho' it be easily reduced, it is difficultly retained so, because a Steadfast Compression is hard to be preserved for any Time.

The *Clavicle* being less solid than many other Bones of the Body, makes a *Callus* the sooner thrust out, for that is what depends much on a greater or less Porosity.

If it do not unite evenly, the illest Consequence will be the Motions of the Arm forward being impaired.

The Dressing to this Fracture is a defensive Emplaster first, a large Compress over it, and then the Splints, the Number of them may be either three or one, as different Judgments shall approve; if three, then the two longest, with each a Compress under, are to be placed one above the other, below the Bone, and the third, which need be but very short, is to go cross them direct-

H ly

ly over the Fracture, the Vacuity between having been first filled with other Compresses to make the whole bear equally, if but one Splint, (which is what I always chuse my self,) it must be cut parabolical, as best adapted to the Shape of the Part, and to make it fit with greater Security to the Fracture: I put besides the Compresses, ordinary for filling up the Vacuities, another cross that Part of the Splint which is to rest directly on the Fracture, that so the Pressure may be closest there: Over either of these must be brought the Bandage called *Capeline*, describ'd by *M. L'Clerc*, taking Care to fill the Arm-Pits with Tow or soft Linnen, to prevent Galling and Uneasiness.

Notes on the Leg.

Tho' the Length and Conformity of a Leg is very much conserved when the lesser *Focil* is entire, yet it may be so bowed, as to create great Lameness, and this from a heedless Elevation, but more from a Depression of the Heel; wherefore a constant Care will be requisite for a firm, steady and equal Position, particularly from the Fracture downwards,

wards, for that is most yielding; and a Negligence in fixing it will produce a Curvity, and this the more likely, the higher the Fracture is on the *Tibia*. But such a Depression (by the Way) cannot have the same Influence on a fractured Thigh, because the Joynt of the Knee intercepts such Motion from it.

The Dressings for the Leg, are, as in the general Account; it has only this in particular, that it may be placed in a Case, filling up the void Spaces on each Side, from the Knee to the Ankle, with Compresses to steady and prevent, as much as we can, its yielding to the Motions of the Body.

We must also apply a Defensative to the Knee, the better to prevent Tumor and Fluxion, and place it in a strait Line with the Body, for those heavier Parts next the Body, sinking by their Weight, will soon make this in an Ascent.

The Signs of a good Reduction will be a soft Tumor below the Bandage, and having had that Appearance, and the Pain no more than what ordinarily accompanies a Fracture, we may submit it to our first Dressings, without any Alteration for a Month; then, or before, the entire Slackness of the Bandage,

and Itching of the Part will call for an Opening; and having given a Perspiration to it, by a Bath of warm Water, the Dressings may be re-apply'd, or left off as the *Callus* is found more or less confirmed.

Notes on the Thigh.

A FRACTURE of the Thigh is the most considerable of any, the most difficult to manage and preserve in a good Site, has the worst Symptoms attending it, and the ofteneft ends in Lameness; and this first, because its being the compactest Bone of the Body, and environ'd with thick Muscles, the Force that breaks it must be greater, and consequently the Contusion, Pain, &c. aggravated.

Secondly, because being a single Bone, and destitute of any other Help to preserve it in a true Position, than what the Dressings give, it suffers unavoidable Disturbance from Stooling, and the restless Motions and Longings, that will ever happen from one long confined in an unaltered Posture.

Thirdly, because the Thickness of the Flesh makes the Bandage less Effectual

ctual to prevent it, and still the worse when they slacken, which will be always before a *Callus* is formed.

And fourthly, the Obliquity of the Fracture here, is for the same Reason of worse prognostick, then in any other Bone, for when it is very great, the Pain that stimulates the Muscles, will draw up the inferiour Part, in spite of any circular Bandage; and the farther the *Fibres* in Union depart from their Opposite, the shorter the Limb, and greater must be the Lameness.

To find in what Part of the Thigh the Fracture is, slide one of your Thumbs gently on the outside, for there the Bone is nearest the Touch, and by giving the Thigh a little Motion at the same Time with the other Hand, you are presently convinced of the Place.

Extention for Reducing it should be strong, least the Ends by their Attrition, should break off some Particles, and create a future Disturbance.

The Signs of a good and equal Coaptation, are taken from its answering in Length and Shape, to that of the sound Thigh, and from the Surgeon's own Feeling, who should move his Thumb

smoothly up and down, till he is entirely satisfied.

The Dressings for this Fracture take up Time, and should therefore always be in Readiness. In order to apply them, the two Assistants who make Extention, still continuing to hold the Limb fixed and steady, you are to apply an *Empl. E. bolo*, the Defensative Number 31, or the like, and three Rowlers; under the first, I include an indifferent thick Compress directly on the Fracture, and on that Side, the End of the inferiour Part of the Bone was felt, for thither it will always have the greatest Tendency; the last is a double Rowler, and within that half of it which goes downwards, I comprehend a large Compress, thick enough to bring the lesser Part of the Thigh, to such a Bigness, as that the Splints may bear equally, and then finish the End below the Knee. The next in order are the Splints and Compresses: There must be a large Splint shaped for the under part of the Thigh, and about three more of less Magnitude, all armed with Compresses, which for supporting the Reduction, are to be tyed fast about the Limb with three or four Tape Ligatures:

tures: Further, it is, after this, convenient to know where the Patient is to continue, that so the Bed, Pillows, Ligatures and Junks (which are to lay under him, in the Order they are mentioned) may be placed so as shall best suit Ease and Convenience: For Instance, if a Cot be spread over the Bed, if the fractured Thigh be outside, and the Pillows the Limb rests on very soft, they are each more convenient than the Contrary, (for why,) a soft Bed sinks the Body and Limbs unequally, and hard Pillows sit too uneasy; and on the other Side, keep the Limb from falling porportionably with the Trunk, both of them incommodious and hurtful.

The Junks (only in this Fracture necessary) are two, made of Sponge or Mop-Staffs, armed with Tow, and rowled up in Linnen or Bunting, contiguous. The outer Junk must be longest, and reach from the Ankle to above the Hip. The inner must come as near the Groin as will consist with the Patient's Ease; both are rowled up close on each Side, and fastened with the Ligatures that lay next under them; at convenient

Distances; Pillows are also tied, rounding upon the Thigh and Leg, and the Hollows of the Ham and Heel, filled up, to hinder swaying either to the Right or Left.

The Sole is of Pastboard cut near the Shape of the Bottom of the Foot, with Holes peirced through for a narrow Tape which is to be fastened to some or other of the Ligatures that ties the Junks; the Use of it is to keep the Foot upright, and stretch out the *Tendo Achilleis*, which otherwise would probably, by long laying, contract.

There must be lastly, some Contrivance to prevent the Weight of the Bed-Cloaths affecting the hurt Part: In a Cradle it is done by a Hoop or two passing from one Side to the other, and in a standing Bed, by a wooden Pin, of a proper Height, fixed at the Feet of the Bed-Post.

Having thus briefly run over the Method and Treatment of a Thigh, the most considerable of all Fractures, I shall conclude it with an Observation or two, to supply any remaining Deficiency.

The First Example.

IN the hard Winter 1709, A young Man of 20 Years of Age fractured his Thigh by a surging of the Cable, about four Fingers Breadth above the Knee ; I reduced it, and proceeded in the Method before laid down, only, instead of Junks, I infixed the Dressings with a Sheet of Past-Board (that came from above the Fracture, to below the Calf) placed the Leg and Thigh even, and in a Position easy to him ; kept the great Toe in a Line with his Knee, and carefully filled up the Vacuities at the Ankle and Ham with Compresses: I also bled him, and in the Evening gave the following composing Draught.

*R. Aq. Theria. Syr. de Mecon. a. ℥ss.
Laud. liq. g. xvj. Aq. Hord. ℥ij. F.
Haust.*

The next Morning I found him easy beyond Expectation, (the best Sign of a good Reduction,) and as it is an Argument of the Dressings being well apply'd, and the Fracture in a right Order ; so after such Assurance, there seems little more required from us, or wanting, to success.

The

The present Case, I submitted to the first Applications about three Weeks, only attending to keep the Limb in a due Order, and preserve a Conformity by a small daily Extention: In that Time he became able to walk about with Crutches, and soon after without, which quick Cementation was to be attributed principally to the Patient's Youth, and the Coldness of the Season.

Second Example.

WAS another Fracture, by the fall of a Tent-Pole, above the Middle of the Thigh; he had lain several Hours in the Cold and Rain before I was brought to him, and the Limb very painful, stiff and swelled; however, with strong Extention I reduced it, but before the finishing of the Rowler, heard the Ends of the Bone grate and pass one another; from whence it was easie to conclude the Work undone, yet in regard to the Trouble and Pain he had suffered; I only breathed a Vein, and gave an Anodyne Draught, deferring Reduction till next Morning.

Before the renewal of my Process, I had been debating the Disadvantage of
a cir-

a circular Bandage, when the Fracture is high, there is Difficulty in supporting a Thigh steady for so long a Time, as it takes up in finishing: There is Trouble and Aukwardness to us in making it, And afterwards in giving the Limb a proper and easy site; Disturbances, that in my Opinion, leaves very great Uncertainty, whether (after all our Pains) the Ends of the fractured Bone meet one another, or no; wherefore, I concluded to change for the 18 Tails, and ordered that, and the rest as follows.

Before Extention, I placed the Patient in the Cradle he was to lay in, with the Pillow the Thigh was to rest on under him; upon this, I first put some long Ligatures, for the Junks, then the Junks themselves; other Ligatures to fasten the Splints, then the large Splint and Compress; the * 18 Tail Bandage

* The make of this Bandage is described in the Chap. of Compound Fractures; and tho' it be called of 18 Tails, yet there needs no confined Number, but at Discretion, as may best suit the Security of the Case. It should be so contrived, that the thickest Number of Tails may come on the Fracture, and those Tails rather too long than short, because the former (when thought Necessary) may be shortened or doubled in the Using, but there is no Remedy for the other, but by changing. In using this, the Compresses mentioned before in the circular Bandage, may as conveniently be included here.

next

next, and last of all a Defensative Emplaister, because they so follow one another in the Application.

For extending, I raised his Leg and Knee, but a small Distance from the Pillow, while another made a Pressure or contrary Extention above; the Stiffness and Tumor became now indeed a great Impediment; but having surpassed these Difficulties and reduced it, I made the whole smooth, equal and well supported, repeated *V. S.* the Anodyne Draught, and forbid any other Food, than Gruel, Panada, or the like easy Sustenance.

Next Morning I found a high and quick Pulse, a great Pain and Tumor about the Thigh; but supposing these Symptoms to proceed rather from the repeated Disturbance given to the Part, than any Error in Reduction, I would not meddle with the Dressings, but prescribed as follows.

R. Aq. Hord lbij. Spt. Nitri. Dul. g. xxx. cu tantillo Saccharo ut Palatum placeat pro potu Ordinario. In Pulmento adjicemus Mannæ Calab. Syr. Rhabar. cum Cichor. a. ℥iij. autem Alvus non promovens usum suppositor. Institui quod in hoc Casu præ enematis Existimatus.

This

This procured a Stool, but he nevertheless continued very feverish, restless and uneasy; the succeeding Day I gave as follows.

R. Corall Ppt. Ocul Cancror a. ʒj. Sal Tartar ʒij. divid in Chartulas octo quarum sumat unam quatra quaq; Hora in Coch. ij. Julap. seq.

R. Aq. Epidem Mirab. a. ʒvj. Aq. Cinnam. H. Lactis a. ʒiiij. Margarit Ppt. ʒj. Sachar. Albiss qf. f. Julap.

R. Aq. Lactis ʒj. L. liq. Cydoniat. g. vj. Sp. Nitri dul g. x. Aq. Mirab ʒij. Syr. de Mecon. qf. Hora somni sumend.

I was very doubtful of him for about a Week, but then the Pain and Fever began to mitigate, and the Tumor fall, after this, with due Management of the Part he gradually recovered from all those ill Symptoms, and was able to walk with Crutches at the End of seven Weeks.





C H A P. II.

Of COMPOUND FRACTURES



THE Term of Compound may signify a double Fracture of the same Bone, or when the Accidents of Inflammation, Erysipelas, and consequent Apostemation, has succeeded to a single Fracture ; but Custom has confined the Appellation strictly to such Fractures as are immediately accompanied with a Wound, whether the Bone appears through such Wound or no ?

What I have to say under this Head, shall be on those of them, that are occasioned by Gun-Shot ; where, if the Circumstances and Method of Cure be well adjusted, there will be nothing wanting to make it useful in a compound Fracture, from any other Accident.

Signs. The Signs denoting a compound Fracture, are the same with those of a Simple, only as it is accompanied with a Wound, we have sometimes to
the

the Impotency of the Member, and our feeling the fractured Part, the additional and indisputable Evidence of Sight.

Prognosticks. The Danger of these Fractures is more or less, as the Bone is more or less splintered, and its Substance lost; as it is nearer too, or farther from a Joint; as the Intrusion of foreign Bodies is more or less, and the Wound great or small, convenient or inconvenient for their Extraction, according to; what Limb it is; and lastly, as the Habit is good or bad.

Remarks on those Prognosticks. For first, if there be a great deal of the Substance of the Bone lost, we are apprehensive that so large an Interval or Space can never fill up with *Callus* to support the Actions of that Limb; what this Distance is, and how far Nature may be expected to exert it self in the Supply of a *Callus*, I can from my own Experience assign above two Inches, but have heard Relations, and seen Instances of greater, particularly at our Hall, where a greater Focile of the Leg was shown, from which had been taken away, of the Substance of the Bone, to the Length of five Inches, and that inter-medial Space supplied with a strong
Callus

Callus; now altho' we cannot rationally expect the like Success of this every where, yet such Examples are Encouragement to wait the Strength of Nature, in any great Losses of the Bone, and not immediately resort to Amputation, but to be armed with Patience against the Tedioufness of Recovery; for as the Distance to fill up is great or small so must the Time to perfect it be.

Secondly, if a compound Fracture happen in or near a Joint, it augments the Danger, because the Muscles there become tendinous; and therefore, first, as being endued with a more exquisite Sense, the acute Pain that follows, will always create Fear and Suspicions of its terminating in Fever, Convulsions and Death; nor is this the less to be dreaded if they should not immediately succeed the Infliction; for it is a common observation that such Symptoms are not the direct and immediate Consequence of Gun-Shot Wounds, but come after a Time, as the Parts recover their Sense, and the Sloughs separate: Secondly, they are dangerous, because the Deficiency of natural Heat will keep them indigested, and in the End make them fistulous; and thirdly, because it is a
Chance

Chance if such compound Fractures cure
without leaving some irremediable Maim
or Lameness.

Thirdly, when much Rag or Filth has entered the Wound, or the Bone is so comminuted, as that several Particles and Shivers of it are to be brought away; a large Wound is safer and more commodious, for this End, than a small; and where the Smallness is visibly an Impediment to Extraction, as in Fractures from Musket-Shot, (whose Orifices contract,) there is absolute Necessity of dilating.

But then, it may be remarked of this Extraction, that whatever has been omitted of it, at the first Dressing (which should be made presently on the Infliction of the Wound) is better afterwards left to the expulsive Power of Nature which more kindly thrusts towards the Orifice, any remaining Extraneousity than can be effected by any dark Search with Probe or Forceps, especially in thick muscular Parts: And again, there is not a Necessity that every large Portion of Bone, because loose should be brought away; no, if it adheres to the muscular Parts, returning such to its natural Position, will unite; and

and for the same Reason as any double Fracture of a Bone would, there appearing the same Necessity of removing the whole intervening Portion, in such double Fracture, (let the Distance be what it would) as there does for taking away the former.

Fourthly, In reference to the Limbs, considered severally, one compound Fracture may be worse than another, the inferior, than the superior Limbs, the Thigh than the Leg. A Thigh is so unmanageable, and with all, so fleshy, that any Thing extraneous once lodged there, quickly slides through the Interstices of the Muscles, and so alters its Situation, as makes the finding it difficult, and frequently eludes the nicest Search; however, in this, or any other thick muscular Part where a Bullet or other foreign Body is lodged, we should use our utmost and immediate Endeavours to surmount the Difficulties of Extraction, because tho' such Extranea have sometimes lain Years with little Inconveniency to the Patient, there is yet greater Reason to expect that their Lodgment, (especially on the membranous and tendinous Parts) will be quickly productive of acute Pains, Fever, Spasm, Convulsions and Death.

Inten-

Intentions of Cure. The Rules and Method of treating a compound Fracture, may be comprehended under four Intentions, some of which regards both Wound and Fracture, as they are considered together, others the Fracture only, and they are,

First, The Extraction of extraneous Bodies; secondly, Reduction; thirdly, Retention, and fourthly, the preventing and correcting of Accidents.

First, Extraction.

First, The Extraction of extraneous Bodies is our first and immediate Care, and is by no Means to be deferred, lest the Tumor and Stiffness of the Part prove afterwards an insuperable Difficulty: In order to it, the Patient is to resume as near as he can, the Posture he was shot in; and the Muscles being as yet pliable and soft, there is great probability our feeling and Instruments together, will inform and help us to get out all foreign Bodies, with Ease, the same Way they entered; an Incision (if needful) may be made to facilitate it, but if it has near made its Way through, it will be properest in the opposite Side,

or where it would have passed if the Force had not failed.

In extracting these Bodies, the Forceps should not be opened till you touch them, lest you inclose some Flesh or Tendon, that will both frustrate the Removal and give unnecessary Pain.

When all is extracted, that is within reach of your Fingers or Forceps, it may be proper to inject some warm Wine, or the Decoction of some vulnerary Herbs, to bring away any remaining indiscernable Officles or Bits of Garment.

Second, Reduction.

Reduction follows Extraction, it is the Reposition of the fractured Ends of the Bone, smooth and even, performed by a due and steady Extention; but of this, I have spoke sufficiently in the Chapter of simple Fractures, and shall therefore decline any Repetitions, and come to the Retention of it when reduced, in which we take a different Procedure.

Third,

Third, Retention.

Retention of the Bone in its Place, consists, I think, in nothing more than a proper Bandage and Position of the Limb: To answer the first of these Intentions, we always chuse that of 18 Tails, for the Conveniency and Ease of daily dressing the Wound.

In using this Bandage, the Middle, or undivided Part of it, is to lay underneath, or as opposite to the Wound, as you can; and that it may be kept longer clean, we are, after every dressing, to interpose a large Compress between the Wound and it; and upon that Compress again, it will not be amiss to lay three or four other Linnen *Splenia secundum Longitudinem*, for the better Support of the Fracture.

* This Bandage is made of three Doubles of strong Linnen sown in the Middle, and divided at each End with two Cuts of your Scissars, a fit Depth.

There is another Way of making it, and which I think better answers the Purpose, and that is, tearing off 9 or 10 Lengths of Linnen; these are spread with such an Edging to one another, as may make the Breadth of it suitable to the Length of the Limb fractured, then an entire Piece of Linnen, of the same Length being put on them, they are together sown well down in the Middle.

All these to be retained with the Roller, each Lamina of it enfolding the other regularly, and that done, the Limb is to have a Scituation, soft, smooth and equal.

I should, before applying the Bandage, have given the Dressing of the Wound, as what must precede it ; but as it requires a daily Renewal, and as the Treatment will contribute very much towards preventing any ill Accidents, the Order and Alteration of such Dressings, from Time to Time, will be more methodically observed under our next and last Intention.

Fourth Intention.

Preventing and correcting Accidents.

THIS is an Intention of large Scope and Implication, including in it the Method of Cure for every Accident those Fractures can be subject to ; I shall insist here only on those peculiar to it, as compounded, and refer my self for the rest, to what has been before more amply delivered of simple Fractures.

When to the Greatness of the Hurt is joined either a bad Habit of Body on the Patient's side, or ill Management on the Surgeon's, there frequently and almost

most unavoidably succeeds *Pain, Tumor, Convulsion, Erysypelas, or Mortification.*

Ill Management of the Part, is principally the Surgeon's Care to correct, and in which he should be the more solicitous, not only because Negligence reflects discredit, and exposes to a Prosecution ; but because it must be his Skill in a proper Treatment of the Part it self, that will most effectually prevent or remove all dangerous Symptoms ; and for this End, when alarmed with any unusual Appearances, he should look back on the three former Intentions, how well they have been comply'd with ; whether skillfully managed or not: Either the Bone lies uneven and distorted, having jagged Ends that become uneasy to the fleshy Part they rest on ; or, what we ought still to be jealous of, some extraneous Body, yet behind, pricks on the soft and sensible Parts exciting those Symptoms ; or lastly, that our Dressings are disagreeable, either as they respect the Wound or the Fracture.

In answer to these, first, if any acuminated Particles of Bone is by its Contiguity visibly (as in large compound fractures they often are) the Occasion of Pain, Tumor or Inflammation, it is

easily removed with Forceps and Scissors ; but when this is not so apparent, (the Narrowness of the Wound, secluding Inspection,) and yet the Symptoms still so increase as to give just Apprehensions of it ; or that some loose Body remains still behind, covered from our Sight : I say, when we have this Mistrust, and thus reasonably grounded, the Question occurs, whether the Wound should be dilated, or no, for the Removal of it ? Because the present Circumstances of Tumor and Inflammation, in my Opinion, make a wide Difference from the Wound first received. For the Discussing of this, it will be proper to state the Inconveniencies on either Hand ; if such an Incision cannot be proposed, as will render the Search less difficult and disappointing, as sometimes the Depth necessary, and Parts to be divided, make a Question, (especially among large Arteries and Tendons,) then we must avoid it. The Symptoms will be aggravated from the very Thing we hoped a Remedy, adding Pain to Pain, and increasing the Fluxion : But on the other Side, if an extraneous Body be evidently lodged on such sensible Parts, as irritate to these Accidents, then dividing
that

that Tendon, Nerve or Artery, to extract it will be of less noxious Portent, then permitting the Exaggeration of Symptoms that directly tend to the Destruction of the Patient.

My own Practice has been after a diligent Search and Extraction at first, to leave the Remains to the Expulsion of Nature, by an Apostemation, assisting hereto by anodyne Administrations, mild Cataplasms of *Farina Avinac.* and a soft quiet Position; for there is no fear that she will ever sit down easy with so inhospitable a Guest: Nature will, as she is wiser than we, effect the Exclusion of it, in her own Time, by a gentler and easier Way, than making a blindfold Incision. The only Inconveniency of Abscesses here (which is indeed a very great one) is, that the Matter of them (in spite of any Means to prevent it) will slide between the broken Ends of the Bone, and cause them to foul and exfoliate; yet even this may in a great Measure be avoided by making a Vent in some depending Part, and diverting the Discharge; so that on the whole, I conclude, it is sometimes safer trusting to Nature than our selves.

Secondly,

Secondly, the Dressings to the Fracture may be hard and ill apply'd, which, if so, must be amended in those Respects, or our immediate Application to the Wound, may be disagreeable and excite Pain, &c. by being improper in their Nature, or unseasonable in their Use.

All those are improper in their Nature, that harden the *Eschars*, and render the Wound crude and indigested, such as spirituous and absterfive Applications which Serjeant *Wiseman*, in his Treatise of Gun-Shot Wounds, condemns in a very plain parallel Case, for says he, take an Issue made by a Caustick, and after you have cut through the Eschar, continue but to dress it ~~but~~ a few Days, with a Pea dipt in *Tinct. Myrrh.* and it will not be unlike those Wounds, Inflame and Tumefy, if not Gangreen; what has led some to this Practice, he says, was the Blackness and ill Colour of those Wounds, which did not ill resemble a Mortification; but tho' there may be an Extinction of Heat, it is superficial and very unlike that; and I am convinced the best and quicker Way of recovering it again, is by good Fomentation to cherish the Heat, and, immediately to the Wound it self, Lenients
and

and Digestives; but these again, we must mind, will be unseasonable in their Use, when they encrease the Matter too much, or give Rise to a *Fungus*.

For a Digestive, N^o 25, or R. *U. Basilicon* ℥iv. *Tereb Ven. Linimt. Arcei. a.* ℥ij. *Ol. Hyperic.* ℥℥. *M.*

This (having first dressed the Bone dry) is with Pledgits to be apply'd warm over the rest of the Wound, a Compress out of *Spt. Vin.* is to cover them, and then your Splenia and Rowler, as before delivered.

When the *Eschars* are separated, Detergents must succeed to cheque the encrease of Matter: Incarnatives and Desiccatives to them again in their Order, but of this, more in the following Observations.

First Example.

A Compound Fracture of the Leg. Was of a Man aged 28, who received a compound Fracture of his Right Leg, by a Splinter in an Engagement with the Enemy: The Wound was large and commodious for Extraction, and through it I presently brought away several loose Pieces of Dirt and Bone; there was one larger

larger than the rest, which not being separated from the Membranes, I replaced and found afterwards to unite with the whole: After having cleared the Wound of *Extranea*, I found the Ends of the Bone near two Inches asunder, a Distance that surprized a little, but having known as large a Void as this, to fill with *Callus*, I resolved to wait the Event of Nature in it, and preserve the Limb, if possible. The Bone I dressed with *Tinct. Myrrh*, the Wound with the same Digestive, and the Fracture with the same Compresses and Bandage as above, taking particular Care in the Scituation of it, that the Ends of the Bone pointed to each other, and that the whole lay smooth. The better also to keep off a Fever with its Train of Consequences, I bled him, kept him to diluting Drinks, and a very spare Diet.

In a Fortnights Time, I found some of the *Eschars* separated, and with them, at several Times, *Officles*; he varied in his Disposition during this, and was sometimes very easy, and at other whiles full of Pain and feverish; at length both encreasing on us, a Fluxion of Humors at once distended the Limb from the Knee to the Ankle, a considerable Quantity

tity of bloody Serum discharged from the Wound, and some small *Vesiculæ* arise about it.

I began now to repent of not having amputated this Leg at first, and had done it now, if his Fever and Weakness had not put me in Dispair of Success, and therefore almost hopeless of any good Issue, I applied round the whole Limb, the Cataplasm of *Farin. Avinac.* N^o 33, and prescribed internally the Cortex, as follows.

R. *Pul Cortic. peruv.* ℥ij. *Syr de Mecon* q̄s. *F. bolus sexta quaq. hora sumend.*
Super bibend Cochlear Julap. Analeptic.
 N^o 9.

This, I found on the first Opening, had made a vast Discharge through the Pores, and considerably every Day after, which, for that Reason, I continued alternatively with Fomentations, till the Limb was entirely disburthened; when the Wound became clean, the Tumor fallen, and the Fever gone off, I made him a laxative Drink, and returned to Incarnatives; these filling the Wound too fast, gave me a tedious Trouble again in the Exfoliation, but that at last being obtained, we cicatrized the whole in about three Months.

Second

Second Example.

A compound Fracture of the Thigh.
 Three or four Days after the taking of a Prize, we had a Prisoner brought on Board with a compound Fracture of the Thigh; the Bullet had entered on the upper and outward Part, wounding the *Membranofus* and other Muscles, but did not pass through. Before his coming here, the *French* Surgeon had extracted some Bits of Garment that was carried in by Force of the Blow; but the great Pain that continued, especially on any Motion of the Limb, the Tumor, Inflammation, and Way of receiving the Wound, gave both him and I just Reason to suspect the Bullet and other foreign Bodies, still lodged within, confirmed every Day more to us, by the Pain and Fever increasing, and abundance of bloody Serum from the Wound.

As the Case appeared with all imaginable Danger to the Patient's Life, I proposed an Incision, as thinking we could never incur worse Accidents (how deep or large so ever we made it) than what threatened us already; but the Gentleman being of Opinion such Incision

cision would be giving unnecessary Pain, and that the finding the Bullet under these Circumstances, would be almost (if not altogether) as difficult after as before, we declined it, and gave internally Anodynes, and the *Mixtura Febrifuga in tempestivis*.

To the Wound we used a short soft Tent, moistened with a Digestive, an Embrocation of *Ol. Rosar* warm, and the *Cataplasma resolvens*, the Bandage for a compound Fracture, and a proper Situation.

The Pain, notwithstanding, became in a manner agonizing, and what completed the Misfortune, instead of Incision a thick dry Tent was thrust in to dilate the Wound, and give free Vent to this bloody Serum, which was now in greater Abundance.

This had all the ill Effect that could be, the Tumor and Inflammation were extravagantly encreased by next Day, the Limb convulsed, and a *spasmus Cynicus* followed.

We made a warm Embrocation of the affected Part, and down the Spine, with *Ol. Rutæ Succin. a. p. æ.* breathed a Vein, and gave a quieting Potion, but to no Purpose; he continued so 24 Hours, and

and died the fourteenth Day from receiving his Hurt: What I shall further remark from this and other the like Observations I have met with, is, first, that in Gun-Shot Wounds of the Nervous, or other very sensible Parts; their worst Symptoms seldom appear immediately, because, as I take it, the *Eschars* supply for the present, that Fence they naturally had against external Injuries, but when these are separated, they become exposed to the Intrusion of Air and more inimical Applications, (scarce any Thing agreeing with them,) and then Convulsion, &c. ensue.

And secondly, when Convulsions do happen, particularly the *Spasmus Cynicus*, it is of fatal Prognostick, even when the Wounds to all outward Appearance are very inconsiderable.

A Compound Fracture of the Cubit.

T. R. received a small Shot through the inner Part of the Cubit, about four Fingers Breadth below the Joint, fracturing the *Radius*: After I had extracted what Bodies I could find, that were carried into the Wound, (which were many,) I dressed each Orifice with a small short Tent.

Tent in a Digestive, applying an Emplaster, Compress and Bandage as has been repeated, and placed it to his Breast; for a few of the succeeding Days, I made Use of a Fomentation, and embrocated the whole Fore-Arm with a Discutient Liniment to further Digestion, and resolve the Hardness of the Tendons that accompany'd it; but Pain encreasing, an Inflammation spread it self to the Joint, possessing almost the whole inside of the Arm.

I made several Scarifications round this inner Orifice, and fomented it well, which had the desired Effect, gave a Breathing to the Wound, and in a few Days the external *Eschar* separating, the Tumor dissipated; I then altered my Dressings by Addition of *Bals. virid.* to mundify and hinder too quick a filling up of the Wound, which would have impeded the Extrusion of some little Jaggs of Thread and Rag, that I now and then observed to come away with the Discharge: When that Fear was over I threw out the Tent and cicatrized.

I shall finish this Observation and the Chapter, with an Excursion on the Use of Tents.

Mr. *Belloste* condemns them heartily, he says, the End proposed by them *viz.* keeping open the Orifice of the Wound, conveying Medicines to their Bottom, furthering the Extrusion of extraneous Bodies, and imbibing the Matter generated, are so far from being performed, that they are an Impediment to it; and to prove this, he abounds with Relations of the contrary Consequences, to wit, great Pain, Inflammation, Convulsions, Abscesses, Gangrene, sinuous and fistulous Ulcers.

But Notwithstanding his Authority, I think they are not to be universally exploded, a soft and short Tent for a Time is in many Cases not only useful but necessary; those ill Symptoms he in so many Observations repeats to have happened from them, have had other conjoint Causes, and when apply'd to Tents, should rather have been ascribed to their too great Length, Thickness, Hardness or Continuance, for in those respects they may, and frequently are exceeded to a Fault.

I shall reduce the whole of this Subject into two general Cases, where the Use of Tents seems preposterous, and yet in which they are the most (tho' inex-

inexpertly) used, and that is when the Quantity of Matter in a Wound or Abscess, is very large, or when it is little or nothing.

In the first Case, Tents manifestly do hurt, the Matter being pent in, as it were, with a Spiggot, and tho' we should make them smaller than the Diameter of the Orifice of the Wound, yet they by imbibing the Matter, swell up to it, and equally hinders the Vent and Eruption, and from this Retention both on Account of the Pain it gives, (and also of that Maxim, that Corruption breeds Corruption,) the Quantity will be increased, and of Necessity translate it self (when thus stopped) elsewhere, and so Apostemation on Apostemation, may prove the Reward of our Inexperience; whereas, throw aside Tents, and only make good and advantageous Compression in your Rowling, and there is no fear of the Wound or Abscess closing, till emptied of all or most of the Pus or Sanies, collected; but if there should, Dilatation by Incision better secures our Fears, and will be a much more eligible Expedient against it, than Tents.

Again in the other Case, when there is little or no Matter, and the Wound is

what we call indigested, the Hurt that Tents do is obvious; for as it is the Pain that attends Wounds, which makes them, for the first Days after Infliction, a little inflamed and tumefy'd, and which, in other Words, is but the croud-
ing of Humors, or Distention of the Vessels from that Attraction, soft and easy Applications disposes the Wound to digest, and those Accidents to disperse and dissipate; but if by a wrong Method (such as Tents) we pervert Nature's Operation, the sensible Parts are further irritated and Pain encreased, &c.

It will be necessary then, in these two common Cases, and also in very sensible Parts, wholly to abstain from the Use of Tents, but in penetrating, and in deep Flesh Wounds, where the Quantity of Matter generated, will of Necessity be out of Proportion to the outward Orifice: Soft short Tents helps the Digestion of the inward Wound, furthers the Extrusion of extraneous Bodies, and conveys the Medicines proper to absterse, cleanse and heal.

*Example.**A penetrating Wound of the Thorax.*

INGAGING a Privateer in the *Tartar* Man of War, 1707, *James Smith* (one of our Seamen) received a Musquet Shot thro' the *Thorax*; it struck on the Body of the right pectoral Muscle, and passed out close to the fifth or sixth *Vertebra* of the Back, breaking off Part of their transverse Processes, as appeared by several Officles discharged afterwards at that Wound; I imagined this being the lowest of the two, the Eruptions from the *Thorax* would have been here; but it not proving so, I shall only take Notice, that it healed in a Fortnight or three Weeks, with as little Purulency as might be expected had it been only superficial.

The Strefs of the Cure lay at the Orifice before, which I shall the more precisely examine: I extracted thence, at the first Dressing, some Bits of Rag, which had entered with the Bullet, and were within View, dipped my Tent in warm *Ol. Tereb.* because of a little Bleeding that appeared, a *Ceratum Diapalm.* over; placed him in Bed, half erect, but lean-

ing towards the Wound, blooded and prescribed as follows.

*R. Elect. fracaſtor. ʒſ. Antim. Dia-
phoret. gr. x. fiat Bolus ſuperbib. Hauſt.
Sequentis.*

*R. Herb Pectoral pj. Radliquirit ʒj.
Sem calid. ʒſ. coquant in Aq. Hord Ibiſſ.
Colatur add. Vin. Alb. ʒiv. Mell Anglican.
qs. propotu Commune.*

For the firſt Week the Patient was feveriſh, ſpit now and then bloody, had a very large Tumor ſpread over the whole Breſt, made up of extravafated Juices, that might be felt fluctuating between the Muſcles; and what was worſt of all, a Diſcharge of ſix or eight Ounces from the Wound, at every Dreſſing, (which was twice a Day) of a bloody Serum, ſometimes mixed with Grains of a fleſhy Subſtance, that proſtrated his Strength and Appétite, and made him faint.

The Queſtion now turned, whence this Diſcharge was? whether beneficial? And the Service Tents contributed towards it? Neither of them, perhaps, improper to expatiate on in the Proſecution of this Cure. And firſt, The Diſcharge was partly external, might be judged by the daily ſinking of the Tumor on the

the Breast, and yet the Quantity, Liquidity, and particularly its Expulsion on the Patient's coughing, were convincing Proofs the greater Part was Internal: How it should rather take its Course, this Way, than fall on the *Diaphragma*, is, I think, evident, not only in that the Matter of it was not from the Cavity, but Substance of the Lungs, and from the peculiar Make and Adhesion of that Bowel to promote it; for if they are not immediately tied to the *Pleura*, yet they have so close an Adherence (especially if tumefy'd) as makes the Wound but one continued Orifice, or conduit from without into their Substance, demonstrable by the Force the Air comes out with when they are penetrated, which would be scarce perceptible, where the Wound there to recede any Way from the external one, and again, where they not close to the *Pleura*, more than does, would fall (between it and the outer Membrane) on the *Diaphragma*; but by this, apt and convenient Scituation, and peculiar Make, (separate little *Lobes*,) it comes to pass, that when the internal Membranes and Vesicles, constituting their inward Substance, are swelled and loaded with extravasated Juices, from the

torn lymphatick and capillary Vessels ; that the direct Course of throwing off this Incumbrance, must be through the Wound ; and the Breast being more dilatible than the hind Part of this Cavity, their expulsive Tendency is more that Way, and therefore the Wound that is forward, though higher, can, and will better (with a proper Posture) divest them of any extravasated Load, than that behind, though inferior.

Hence we may learn, that whoever shall endeavour to pervert this Course of Nature, in Wounds of the Lungs, under Pretence she must be relieved by an *Empyema*, discharge by Urine, Expectoration, &c. must inevitably hurry on fatal Symptoms, since none of these Ways can discharge so much or so seasonably as is requisite ; and also that those do endeavour it, who obstruct this natural Course at the Wound, with large thick Tents, and tort Bandage.

Secondly, as to Tents, how and in what Manner they were useful here, and that was by keeping the Wound open, they facilitated the Expulsion of those tinctured Scrofulities, and Bits of Membrane that I have observed discharged from within, and at the same Time,

con-

conveyed a proper Medicine to the Bottom of the external Wound, for forwarding the Separation of the *Eschar*, which being always soonest at the outward and most exposed Part: It would have fell out had the Orifice been dressed only with a Pledgit, that the *Eschar* had come away soonest there, and so contracting, had prevented, or at least impeded the necessary Work of Extrusion; they were therefore highly necessary; and my Manner of making them more effectual at this Time, to the Purposes intimated, was to have them soft, slender, of a Length, short of the Thickness of the containing Parts, and dipp'd in a warm Digestive of *U. Basilic. Ol. Hiperic. a. p. a.* I left a Thread to it always, made Illiniation over the Breast, a large discutient Emplaister, and thick linnen Compresses, braced on with a flannel Jacket.

I have hitherto considered the Patient only, to the first Period of seven Days; it remains to give other Observations in the Sequel of the Cure, particularly as they relate to the Tents.

About the seventh Day, the Air came out at the Wound, with considerable Noise and Force, which, till then, had been

been scarce perceivable, either because the Patient's want of Appetite, and Weakness, made the Office of the Lungs performed less laborious and easy; or that the *Eschar* Gun-Shot leaves obstructed its Exit; or lastly, that Pain and the Tumor of the Muscles contracted it closer; or perhaps altogether, and now as the Tumor began to discuss, Appetite and Expectoration mend, and the *Eschar* to drop off, the Air and Extravasation had a freer Passage, and the Discharge lessened.

About the 14th Day, the Discharge having diminished considerably, and a Digestion appearing on the Tent, I rather lengthened it, and sprinkled the upper Part (as often as wanted) with an Escharotick, to prevent the Orifice contracting too fast, and for laying a Foundation of Incarnating from the Bottom; every Thing now contributed to help us, for after two or three Days more, scarce any Thing came away at the Wound with coughing, and having a plentiful Expectoration, and sometimes a thick muddy Urine; I endeavoured to assist those favourable Evacu-
 ations, with pectoral Drinks, Apozems,
&c. shortening the Tent gradually, and
 at

at the End of a Month or five Weeks, threw it quite out and healed. He continued, after this, afflicted with an asthmatick Cough for two or three Months, but recovered of that too at length, and remained only impaired in the Motions of that Arm.

From these latter Periods of the Cure, we may farther observe concerning these penetrating Wounds by Gun-Shot. *That they are less dangerous than Wounds by sharp Instruments*, because the Celerity of their Flight makes a superficial Extinction of Heat, which lies as an *Eschar* or cover on the torn Vessels, and which is thrown off by a succeeding Substance that closes them.





CHAP. IV.

Of AMPUTATIONS.



IN this Operation, the first Thing we ought to have in Intention, is the stopping of the Blood, that so when Excision is made of a Limb, we may not be at a Loss for the *Apparatus*; nor a Presence of Mind to apply it: Too copious a Flux may not only be of immediate Hazard, but by dispiriting a Patient, and abating of those Supplies every Part should receive, subject the Stump hereafter to the worst of Symptoms, *viz.* Pain, Indigestion and Mortification.

It is therefore a necessary Interruption to adjust now, the properest and safest Way of stopping the *Hæmorrhage*; that at the Operation we may not seem plunged in Difficulties, a Thing terrifying to a Patient, and of great Disadvantage to the Success of it.

There

There are three Methods in Practice: The first is by Medicines Astringent or Styptick.

Second, by Cauteries actual or potential.

And the third is by a Deligation of the Artery.

First, Astringents. In this Class we may reckon all Earths, *Terra Sigillat. Lemnia, Pul. Astringens, Bolus Vera, Sang. Dracon. Flor. Balaust.* All Vinegars and rough Wines, and to speak generally, all such Things as are dry, and have an Asperity of Taste; also Medicines of a gummy, sticky or glutinous Nature, such are Whites of Eggs, *Hare's Hair, Aloes, Thus, Myrrh Terebinth* of all Kinds. The Manner of using the Powders, is mixing them to a Consistence with Oxycrate and Whites of Eggs, and then spreading them thick on Pledgits of Tow.

Astringents, when they are most successfully used, are not from any irresistible Stop, their Stipticity can make to the rapid Current of the Blood thro' the Arteries which is absurd, but from the Circumstances of their Application; For when thick Pledgits are used, one compressing another, cross Cloaths and
Rowlers

Rowlers on them again, straitly bound on: The Stump must needs be as secure from a Flux, as if a strong Compression were made with the Thumb immediately on the Vessel it self.

Ol. Terebinth. is of general Estimation among Astringents; Mr. Young celebrates it extraordinarily in several Experiments he made; in the present Case he explains its Operation in these Words, *That it restrains an Hæmorrhage by contracting the Orifice, and begetting a firm Coagulation of the Blood, which Coagulum, he thinks, probable, heals the Orifice of the bleeding Vessel, either by uniting its Coat, per Symphisin, or by Concarnation, i. e. begetting some intermediate Substance, which it will nimbly do.*

And I must confess it an excellent Medicine in Amputations, not only in its constringing, as effectually as any other of the Class, but principally from the admirable Property it has of restraining that frequent and troublesome Attendant a *Synovia*.

The Juices effusing and maturing on the Stump, being by a skilful Management thereof, justly proportioned (thro' the whole Cure) from the Extremes of Indigestion and Putrefaction:
But

But whoever hopes more from this, or any other Astringent, that is, shall expect their bare Application sufficient to resist so impetuous a Motion, as the Blood flows with, through the crural or axillary Artery, builds on a very sandy Foundation, and will, on tryal, find himself deceived.

Besides, Astringents used alone, have these further Inconveniences.

The first and greatest is, our being necessitated to make a very strict Bandage, and that especially with such whose Crasis of Blood is hot, thin and ferous; the Consequence of which is present excessive Pain, and often in the Sequel Mortification.

A second is, that there being confessedly only a *Coagulum*, on the Orifice of the Vessel, by Astringents; it is very much to be feared the first Dressings (clogged and cemented by Heat and the extravasate Blood) cannot be removed without occasioning a fresh Flux; or should that be avoided by a cautious handling and undressing the Stump, yet there still remains Danger from the Pulsation of the Artery, the Obstacle it has to break through, being weak, when the other Fences of Rowlers and Compresses are removed. And

And therefore Thirdly, for Security, we are obliged to make a cross Stitch, to let the first Dressing abide longer on, and perhaps to fasten on the Turniket at undressing; all which contributes to give unnecessary and greater Pain, to diminish the natural Heat of the Part, and to occasion Faintness and Indigestion.

The second Method for stopping an Hæmorrhage in Amputations is cautery, potential or actual: These secure from bleeding, by the *Eschar* they make on the Orifices of the Vessels.

The potential Cauteries are less eligible, as their Effects are more tragical; they gnaw and corrode on the Ends of the Nerves and Tendons, and so insinuate and spread their Malignity, that you never fail of extreme Pain from them, a large *Synovia*, and too often Fevers, Convulsions and Death, as may be easily concluded from the Tribe of them. *Aq. Fortis, Ol. Vitrioli, Mer. Sublimat. corrosiv. Arsenic. Chalcantb. Vitriol. r. &c.*

If ever you should be engaged to their Use, the *Pul. Vitriol. Roman.* is the readiest and best: A thick Pledgit or Button is first to be pressed out of warm *Ol. Terebintb.* and when sprinkled or dipped

ped in this Powder, applied to the Mouth of the Artery.

The actual Cautery has heretofore been of common Use in these Operations, tho' at present exploded, and by the best Practitioners rejected by Reason of the Terror and Anguish conveyed with it; yet may this, in some Respects, claim the Preference both of Astringents and Deligation, because, altho' applied to the Orifice of one Vessel, it Influences those of the whole Stump, not only giving a violent Contraction to the Coats of the Artery touched, but the Membranes nigh the Contact; so that the Vessels passing through them, have their Diameters lessened, if not closed.

And this cannot be said done in Deligation, since there we only tye the single and larger Branch of an Artery, leaving the lesser to common Applications, from which may sometimes happen Danger, and more particularly when the Blood is thin and volatile. An actual Cautery is here likewise a Preservative against Mortification. First, by its *Eschar*, and secondly by invalidating the Necessity of strait Bandage.

To use the Cautery aright, there should be a flat Iron Plate to preserve
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the

the adjacent Parts, with a Hole thro' the Middle, made fit to receive the End of the heated Button on the Artery; and in applying it we are to observe, that if not hot enough, it makes no *Eschar*, giving only unnecessary Anguish to the Patient: And on the other Side, if too hot, it then makes an *Eschar* indeed, but separates and loosens it at the same Time, the Security intended being either Way equally eluded: But this is an Inconvenience that may be obviated by a quick or slow Application, as the Surgeon shall judge to the Degree of Heat in his Button.

The third and safest Method against an Hæmorrhage, is tying the Artery; It has justly the Preeminence in Practice, neither carrying the Dread a Cautery does, nor the Insecurity mentioned of Astringents: It can only be unsafe, when by a mistaken Method, the Knot is slipped over the Forceps, (instead of piercing the circumjacent Flesh,) which sort of Knot, indeed, the Pulsation of the Artery soon throws off.

The proper and secure Way of Deligation, is thus: First, a loosening of the *Turniket* being made, and the Artery discovered by its Impetus, you immediately

diately lay hold of it with a spring Forceps; and having the Arterial Needle ready armed, with double Silk, and waxed, you are to pass it round, taking up a small Circle of Flesh, nigh the Mouth of the Artery, then comprehending a very small Linnen Compress between the Tye and it, you make fast with a close double Knot.

Some are of Opinion that the larger Portion of Flesh you include within this Circle, the securer must the Artery be from bleeding, because (say they) Nature takes up a longer Time in separating a great than a smaller Portion; a Reason not of much Weight, for how small soever is the Portion of Flesh included, yet being sufficient to stop a present, it will be sufficient to prevent a future Flux; because any Portion when tied and separated thus from the Life of the whole, is thrust off by a *Syffarcosis* or Conarnation; and therefore the Mouth of the Artery must be as securely shut up by that intervening Substance, at the throwing off a small as a great Portion.

What may be added to either of these three Methods, as Co-juvant are V. Section, Enema's, cooling Emulsions, Opiats

or other different Means of Revulsion and Derivation.

The Operation.

THERE is a Necessity for this Operation, either when a Limb is so shattered by a Shot or Splinter, as to be plainly past a Possibility of Reduction; or when a Wound (tho' not large) happens in a great Joint, such as the Knee or Elbow, whence acute Pains and Convulsions are excited, (or probably would be) endangering Life; and if healed, be not only useless, but troublesome; or lastly, when any preceeding Hurt or Distemper has induced a Sphacelation: There are other Cases that may indicate Amputation, but in these there is little Room for Suspence.

Your *Apparatus* should be laid in three Dishes, the first should hold your Instruments, Knife, Catlin, Saw, Arterial, Forceps and Needle; the second, a lint Pledgit or two, half a score others made of soft Tow and different Sizes, and with them a large round one called a Cap, spread with some astringent Mass to cover the rest; and in the third your Rowlers and Cross-Cloth.

Thus

Thus ready, your Patient should be placed on a Stool, both that he may be supported behind, and that the Assistance about you may be more commodiously used; as to the Surgeon's Posture, it may differ to advantage. When there are two Bones to divide, the inside is undoubtedly best, because taking the lesser Focil with your Saw at the same Time, with the greater, there is not that Hazard of a Fracture or Luxation; but if your Amputation is to be made above the right Knee or Elbow, then your right Hand should be outward, you have greater Liberty in this Posture, more Scope for performing the Operation, and stand better for applying the Dressings.

We begin with fixing the Turniket, and for this Purpose, having drawn the Muscles tort upwards, we enfold the Thigh or Arm with a thick linnen Compress: If it be the Thigh to amputate, we put also a Wadd under this enfolding Compress, on the inside, for a better Compression on the larger Vessels that descend there; then placing the middle Part of the Ligature exactly on it, the Ends are brought over the Compress with a double Hitch, and being

tied down to the upper or outward Part of the Thigh or Arm, the Turniket is put in and twisted to a Degree sufficient to check or interrupt the Course and Motion of the Blood. This Ligature ought to be a Silken, or other Cord that is not too hard, but very strong, for if it should break in the Operation, (unless you are very quick in supplying its want with a strong Gripe,) your Patient is infallibly lost.

Besides these, we fasten two other tape Ligatures, at the very Place we are to make Amputation, leaving only room between them for the Knife to go round: The Use of these are to swell the Flesh to the Knife, and guide it for a smooth Circumcision, which you are now to make, bringing it at once as near the Bone as you can, and as far round: What is wanted of a compleat circular Cision, you are to supply with another Stroke of the Knife or Catlin; with which last also you are to separate the Flesh from between the Focils, and clear it for the Saw.

The Saw is to be set on both Bones at once, (if two,) and divided at as few Strokes as possible, taking heed in the Division, that the nearer you come thro',
the

the easier to move, least the Bones should Splinter; if that should happen, there is a cutting Forceps described in the *Chyrurgia Curiosa Tab. 2d.* proper for pinching such Processes off.

Where the Bone is single, we chuse to take a Piece of firm Cloath to hawl up the Flesh from the Saw, (the Bone proving always better covered for it;) it is made by only slitting to the Middle, the Slit falls on the Bone, and crossing the Ends underneath, you use one Hand there, the other above: In doing all this, a Limb is to be kept steady and firm by an Assistant at each Hand of you, or instead of them (when it is a Leg to amputate) that Instrument in *Chyrurgia Curiosa Tab. 4.* made in Shape of a wooden Leg, and fixed to a proper Heighth for resting the Ham in.

The Limb being off, I shall suppose the Hæmorrhage has been stopp'd by Deligation (the Method most approved) and proceed to the Remainder of our Work, *viz. the Dressing and Bandage.*

The Ends of the Bone are to be covered according to Custom, with dry Lint, (*sicca siccis Caudent;*) and to the Artery we apply thick round Pledgits, dipped in warm *Ol. Terebintb.* one on

another, to render it still the securer ; for as that will be the deepest Part of the Stump where the Artery is, so without this Caution of raising it, at least, to a Smooth, the Compression in rowling would be least where it's most wanted ; The rest of the Stump also we cover with an answerable Number of Pledgits pressed out of the same, over them a large Cap armed with some astringent Mass, a Bladder of the like Dimensions, (made pliant by immersing in warm Water,) two long Compresses to cross on the Stump, and come a Hand's Breadth or more above it, and to fasten all two Rowlers,

I chuse to use both of them single headed : The first is short and beginning close to the Edges of the Stump, is finished with six or seven Turns upwards ; the other is very long, and having begun with a Turn or two, at a convenient Heighth, is immediately carryed cross the Stump as high on the other side, and so returned backwards and forwards over all Parts of it, as our Length will allow, reserving only so much at last as will fasten with six or seven streight Circumvolutions to make the whole sit smooth and equal ; if it be a Leg, the Knee should

should be always bent before Rowling, otherwise the Joint contracts a Stiffness that will difficultly submit to it afterwards.

To cure an amputated Limb, our Endeavours are in the Beginning to prevent Pain and Fever, and to procure Digestion; in the Progress to hinder a *Fungus* and Exfoliation; and lastly, to produce a smooth Cicatrix: The attaining these several Ends, resting chiefly in the Management of the Stump, is the Surgeon's peculiar Province, to which I shall principally confine my self.

Our first Dressings have this in particular, of being always found troublesome to remove, for the moist and aqueous Parts of the Blood being dissipated by the Heat of the Part, the remaining *Coagulum* receiving some Mixture of the *Ol. Terebintb.* cements them like Glue; However, since it must be done, we facilitate our Work, by squeezing out Sponges of warm Water on them, till they grow supple, and are thoroughly malaxed; any Roughness in bringing them away would endanger a fresh Flux, so would a Fomentation too soon used, because the Warmth of it relaxes the solid Parts

Parts, and makes the Motion of the Blood in the Artery stronger.

The first opening of the Stump should be in about 48 Hours from the Operation, and the Dressing then changed for a Digestive.

R. *Ung. Basilicon* ℥ss. *Liniment Arcaei* ℥iv. *Ol. Tereb. Lini & Hyper.* a ʒj. *M.*

Or the *unguent. Digestiv.* N^o 25.

To be renewed every twenty four Hours after, to be applied warm and quick, in a Place least exposed to Air, and when done, the Stump placed on a soft Pillow, with a little Elevation, and kept Moderately warm.

At our next and future Dressings, a Fomentation may be used, designed to give a Perspiration, and cherish the Heat of the Part which of Consequence promotes Digestion.

In a Week more or less according to the Age and Disposition of the Patient, a good Digestion succeeds, on which the Pain assuredly remits, and the Fever, which was only symptomatical, vanishes; at this Period therefore there ought to be a remarkable Alteration of our Dressings, our great Care becoming now to prevent a *Fungus* and an *Exfoliation* of the

the Bone, neither of which can be better answered than by forbearing any further Use of greasy Applications, for such allowedly do both; they foul the Bone by increasing Corruption, and render the Flesh soft and spongy: But then, tho' an Alteration becomes necessary to lessen too great a Discharge, and prevent or remove a beginning *Fungus*: We must not on the other side do it, for Medicines too astringing; for when the Quantity of Matter is large, the giving too sudden a Check to it, will Occasion Apostemations, Tumors and painful Contractions of the Muscles. Those that I have used and found best to answer against such Consequences, are the following.

R. Spt. Vini. Aq. Fontan. a. p. æ. cum Mell Rosar. Edulcorat.

R. Decoct. ex Herbis Fomentat. ℥viij. Aq. Regin. Hungar. ℥iij. Ol. Tereb. ℥j. M. pro usu.

Vel R. Plegiatæ tepide expressæ a Fortu Fortiore.

These, or such like being moderately Astringitive, engross the Blood as it were from flowing to the Part, in a greater Quantity then is requisite for its Nutrition; and are also a fit Dressing for the

the Bone, as preventive of its Exfoliation, as dry Lint can be, of which some are fondly superstitious, and is a Choice, in my Opinion, more or less indifferent, as a Bone is to be a lesser or longer Time exposed.

Where the Bone is single, and we have made Use of that Cloath abovementioned, it generally appears so well covered after, and guarded from the Intrusion of Air, that Exfoliation is often prevented, or (which is the same) becomes insensible; and on the other side, where such a Caution cannot take Place, (as in the Leg or Cubit,) The Bones become necessarily prominent, and exposed to the corrupting Quality of the Air, and Fluctuation of Matter, both which concur to render such Prevention, difficult, if not impossible, nay perhaps it would rather expedite the Cure (in these Cases) if we helped (from the Beginning) to foul it with the same greasy Applications we use to the Wound.

There is another observable, or two, to be heeded in this Progress of the Cure, and they are these.

First, that Edgings be constantly used, spread with *U. Desicc.* for facilitating and bringing the Dressings off clean and easy,

easy, and forwarding the Cicatrix, to which will very much contribute also a good Management of the cross Cloath; I enclose the four Ends of two suitable Lengths of Cloth, under several Turns of the Rowler above, and then crossing the Opposites on one another, contract the Lips of the Stump daily nigher.

The second is to mind the Incarnation do not swell in one Part, and sink in another, but that the whole have a smooth and equal Surface, an End that must be answered by the different Applications of Incarnatives or Epuloticks.

Digestion and Cicatrizing being the two principal Ends pursued in the Cure, I have shown how the Obstacles of Pain and Fever to the first; and of *Fungus* and Exfoliation to the latter, may be best avoided or remedy'd as far as our Dressings and Management of the Stump can do it: It remains in the second Place to make these local Applications more effectual, that we prescribe a Regularity in the Non-Naturals, and give convenient Internals. The Patient should be kept in a warm Air, in an easy Posture, free from Passions, and with a spare Diet at first, and Phlebotomy, Enema's, Anodines, cooling Emulsions
and

and Julaps, administered as they are alternately indicated; a few of the easiest Preparations are as follow.

For an *Enema*, R. *Decoët. Clysteris.* ℥viij. *Butyri Saliti*, Syr *Rosar.* a. ℥f. *Ol. Anisi* ℥f.

R. *Enema commun.* N^o 18.

R. *Decoët. Clysteris.* ℥x. *Ol. Chamam.* *Sacchar. Culinar.* a. ℥if. *Anisi Gutt* viij. *Ægrum in dextrum latus esse Collocandum & tepide injeci.*

For an *Anodyne*. R. *Laud. Londinens.* gr. ij, exhibend. *Hora somni.*

Or, R. *Elect. Frascastor* ℥f. *laud. liq. Gutt* xij. *Ol. Nucis Moschat.* g. j. *M.*

R. *Aq. Cerasor Nig.* ℥ij. *Aq. Cinnamom.* *Fort. Epidem.* a. ℥ij. *laud. liq. Gutt* x. *Syr. de Mecon.* ℥vj. *M. F. haustus Hora Decubitus sumend.*

For an *Emulsion*. R. *Amygdal. Dulc. Excorticat. Sem. Papaver. Alb.* a. ℥f. *Sacchar. Alb.* q. s. *Contundantur deinde additis Aq. Hord. lbij. fiat emulsio Capiend. sæpe in die.*

R. *Amygdalar. Dul. Excorticat. Sem.* 4. *Frigid. a* ℥vj. *Sacchar. Alb.* q. s. *optima una contusis sensim affunde Aq. Fontan lbij. colatur. fortiter Express, adde Aq. Epidem. ℥f. sumend. ad libitum.*

For a *Julap*. R. *Julap. Analeptic.*

Or,

Or, *R. Julap. perlātū Fullianæ.*

These or the like will be wanted most in the Beginning of the Cure, while Pain, Fever and Faintness afflicts the Patient, and the Stump is indigested; but as these are found to remove, those may be laid aside again, and a greater Liberty in Diet assumed; yet still under such Rule as may best support Strength, and yet not generate a *Hyper-sarcosis*; which too full feeding will.

I proceed now to an Observation or two, for supplying what is defective in the general Practice, particularly to show what different Consequences I have found under either Method of stopping the *Hæmorrhage*.

Observation of the Leg.

I HAD my Dressings prepared in the Manner before observed and amputated at five or six Fingers Breadth below the Knee, stopp'd the Hæmorrhage by Deligation, applied Pledgits of warm *Ol. Terebinth.* a Cap armed with Astringent, &c.

For the Evening after the Operation, he continued very chearful, in a Manner thoughtless of the Loss of his Limb; but next Morning I found he had been uneasy, restless, and had a high Pulse,
Nausca

Nausca and Thirst ; an Alteration common indeed, after such Pain and Expence of Blood and Spirits, and may furnish out two Remarks ; first, That the Heat and Surprize in Action makes it the properest Time for amputating, Men meeting their Misfortune with greater Strength and Resolution, than when they have spent a Night under Thought and Reflection ; and secondly, that a symptomatical Fever, more or less, is the sure Consequence of this Operation.

The present Patient I blooded, gave him diluting Drinks, the following Julap, and for two or three Night successively the Pategorick Draught, at the End of the Book.

R.^{ap} *Cinnam. Fort. Theriaca. a. ʒj. Aq. Hord. ʒviij. Sal Absynth. ʒj. Syr. Limon. q. s. F. Julap Dos. Cochlear ij. per vices frequentes.*

With these, and a Fomentation to the Stump every Dressing, we in less than a Fortnight brought on a tolerable Digestion, the Fervour and Inquietude by that Means gradually vanishing, Circumstances that always indicate to me an Alteration of Dressing, and which, according to my constant Practice was thus.

I spread

I spread my Edgings with *U. Diapamphol.* and covered the interspace with Pledgits pressed out warm from a strong Decoction of the Fomentation Herbs, reserved clear for that Purpose, and mixed with a third Part of Spirit of Wine or Brandy.

The Reason of this Alteration soon appears to those acquainted with Practice; for when Digestion is obtained, and the Fever abated or gone, should you continue to Unguents and Digestives, the Stump would be soon over-run with a Hyper-sarcosis, not only unsightly, but a very great Impediment in Cicatrizing, obliging often to the Use of a vitriol Stone, or other painful Escharotick to keep an even Surface necessary to advance the Cicatrix.

The Practice above prescribed, had here the desired Success, the Flesh was rendered hard and ruddy by it, hindered in too quick a Growth; the Wound kept clean, and Nature left to proportion out her own Measure in the Discharge, the Stump from that Time visibly lessening every Day.

As it contracted into a smaller Compass, I found my self obliged to wait for an Exfoliation, which, in the whole took up about seven Weeks, throwing off then

in a deep black Scale; after which I met no other Impediment, purged him once or twice and finished the Cure.

Observation the 2d. and 3d.

JOHN RICE and WILLIAM SMITH.

IN the same Action nigh Genoa, March 17 10, I had two other Amputations of the Leg, the Stumps of Necessity shorter than usual, and stopped the Hæmorrhages with *Vitrolum Romanum*.

The Patients felt from the Beginning, a more than ordinary Pain, quickly inducing Fever, and the Consequence of that large Quantities of indigested *Synovia* from the Stumps, which, by the Way, kept also rigidly streight, as tho' convulsed: Effects that might, perhaps, in Part, proceed from our dividing the Muscles too near their tendinous Insestions at the Knee; but no doubt were chiefly imputable to the Escharoticks.

I endeavoured to relieve and strengthen Nature against the Assaults of Pain by V. Section, Enemas, Anodynes and temperating Julaps; and to the Stumps an assiduous Use of Fomentations and emollient Embrocations, preserving them from the Air and Cold, as much as possible.

After

After a Fortnight, this was the Issue. From one of them we never had any true Digestion, emitting, instead thereof, a deal of thin Gleet, and at length, from the extraordinary Pain that continued with it, a large Tumor formed round the Juncture, filled with the same indigested sort of Serum, which the natural Heat was too weak to concoct. I opened the Tumor, and on a Discharge of it, the Pain and Fever seemingly remitted, and with warm Fomenting, gave hopes for some Time of Success; but an obstinate Looseness supervening thro' his fretful and uneasy Temper, he kept languishing for about a Month with it, and died.

The other, tho' much older, was of better Habit, and by the same Means that had proved unsuccessful there, this Stump was at length brought to Digestion, and thence forward contracted every Day, which for three Weeks after Amputation had been indiscernible.

What I shall farther take Notice of from this short Stump is, that although the Joint had continued painful and inflexibly strait for several Weeks, yet as the Wound closed into a lesser Compass, and covered the Ends of the Ten-

done with a Cicatrix, it gradually suppled and became easy.

Observation the 4th,
Captain WALPOLE.

THIS Gentleman had likewise in the same Action, the right Cubit so shattered as to be past any Remedy but Amputation; I chose to do it above the Elbow, because the Fracture reaching very near the Joint, would not admit the sustaining it against the Division of the Bones below.

The first Dressings to stop the Flux, was only hot *Ol. Terebinth*: After viewing it a Minute or two, and no Stain appearing on the Rowler, I concluded all was secure, and caused him to retire to a Bed nigh Hand, from our Hurry and Confusion with the other Wounded. After he had lain some Time, I was alarmed with the News of a fresh Hæmorrhage, and found at lifting up his Arm, so great a Quantity had issued through the under Part of the Dressings (unheeded either by himself or Servants,) that when I came to him, I found his Speech faltering, his Countenance very pale, and so faint
 with

with the Loss of Blood, I feared his expiring.

On Circumstances so surprizing, I fastened on the Turniket again, directing a Cautery to be heated over half a dozen Candles, (and finding when the Dressings were off, the Blood to be thin and serous, ouzing thro' the Vessels notwithstanding the strictest Compression,) I applied it, and as it happened to be with the Censure of some superficial Men, I must observe for their Instruction (if this falls into their Hands) that Obloquy is the best Means they have to recommend their Skill; always to substitute it where Capacity is required; is a surer Way to succeed with weak Understandings. A covetous and ungrateful Temper! The Patient, at taking off the first Dressing, was faint and qualmish, and the Stump, thro' Strictness of Bandage or Defect of Spirits, blistered and excoriated; these I covered with *U. Album* spread on Linnen, fomented the Stump well, and dressed with a warm Digestive, endeavouring to relieve the other with Cordials; and afterwards his feverish Intemperature, by *V. Section*, an Enema and Emulsions.

I should also, for the same Purpose, and to quicken Digestion, have allowed him more liberally in eating and drinking, the Fever and Danger of a Mortification here, being plainly from a Defect of Spirits; but the contrary Rule obtained, and he confined altogether from his accustomed Way of Living, to the slender Sustenance of Gruel and Panada, till he perceived himself starving, and was perswaded and relieved, by returning to a better Allowance.

It was a Fortnight from the Operation, before we perceived any Thing like a Pus from the Stump, an infallible Indication, when it appears that the Pain and Fever mitigate, and with cherishing would quickly vanish: But here again, preposterously changing too soon our Digestive, for Dressings of *Aq. Caleis*, a rigid and painful Contraction of the extensor Muscles ensued, and which I thus account for; that in Operations like this, accompanied with great Pain, Nature always directs a greater Affluence of Blood to the Part; and when by soft and proper Applications its Conversion to Matter is assisted, the Cure advances with safety and ease; but if the unseasonable Astriction of a Medicine

(*Aq.*

(*Aq. Caleis*) denies this Liberty, and gives a hasty Check to the Discharge, perverting, as it were, Nature's Course, then the Blood that was wont to undergo this Mutation, stops and riots in the Muscles, producing sometimes such painful Contractions as we here met with, and sometimes Apostemations. Agreeably to this Reasoning, I should therefore have returned to our Digestive, and took off the Restraint in Diet, (he was again put under on this Account,) but the Accident being ridiculously ascribed to the Cautery, Relief was attempted only by emollient Fomentations and Ointments, both indeed of Service, but less so, without those other co-operative Helps.

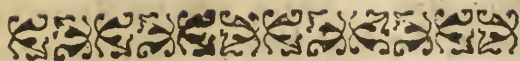
If a Cautery exaggerates Pain, and retards Digestion in the Beginning, yet when the Eschar is separated, and the Stump clean, it shewes a weak Understanding, to assign such a Reason for their Continuance afterwards; and when Digestion is large, there is more to be apprehended from a Deficiency than Excess in Feeding.

The Tumor and acute Pain (with few or slight Intervals of each) continued for the Space of a Month, notwithstanding

standing the assiduous Use of Emollients, and continual reclining of the Stump on a soft Pillow; but at length the Cicatrix drawing in, those Accidents gradually diminished.

Our last Alteration was a Pledgit of *Unguent. Diapomphol.* compleating the Cure in eight Weeks, but without Exfoliation, which became the Occasion of some after-trouble, the Bone at several Times for four Months, throwing off some small Scales: Their first Notice was by a light Pricking under the Skin, which growing still more troublesome, would make their Way through: After this the Cicatrix remained firm.





Of A MORTIFICATION.



Mortification being what I have seen frequently happen after an Amputation; it may not be improper in this Place to subjoyn the Cause and Cure of it.

It is divided into Gangrene and Sphacelus, which differ only in Degree, the one being an Incipient (*i. e.* has invaded superficially,) the other a perfect Mortification.

In a Sphacelus, the Part is altogether void of Heat or Sense, even the Nerves and Tendons, and therefore past any Remedy but a new Excision: In a Gangrene it is not so, yet dangerous according to the Advance it has made towards that, and seizes (as Mr. *Wiseman* says) in an Order of Progression: First, the soft and fleshy Parts next the Tendons and Ligaments, and lastly the Bones, but herein that Author is Mistaken, a Gangrene sometimes instead of last, beginning first at the Bone.

To

To a right Understanding of this truly direful Disease, and the Remedies for it, we must learn to distinguish between what is an *OEsthumenos* (or tendency to) and what is really a *Gangrene*, because their Treatments should be entirely opposite.

A Tendency to, or the Fore-runners of a Mortification, are great Pain, Indigestion, abundance of thin Sanies from a Wound; a large Tumor, either Phlegmonoid or Erysipelatous, and accompanied with a Fever. Now in whatever Wound or Ulcer these Accidents happen, if they should be immediately treated as a begun Mortification, *viz.* either with Precipitate, in hopes to thicken that Sanies or Ichor; to a Digestion, or with strong Fomentations to the Wound, and Cataplasms of *Theriac. Venet & Spt. Vini* mixed, (as are commonly used;) the Irritation they give would increase the Fluxion beyond what the Weakness of the Part is able to encounter with, and consequently suffocate its Heat; so that what we feared, and as we thought, where a resisting comes upon us, *i. e. Putrefaction and Gangrene*; contrarily therefore we should treat such
a Ten-

a Tendency with Lenients, our Business being here to contrive what may soften the Acrimony of Humours, relieve the Tension of the Solids, and ease the Pain, as the best Means to promote Digestion; which under the Symptoms aforecited must be attained, or the Part mortify: The best Medicines for this Purpose are the mildest and least irritating; foment only with a simple Decoction of Sage or Elder-Flowers, and ~~that~~ purely to give a Perspiration; to the Wound or Ulcer, *U. Basilic. Difficat. rub. a. p. a.* and round the whole apply the following Cataplasim thick, it is not inferior to any.

R. Farina Avinaceæ cum tantill. Croc. Bulliat ad Consistentiam Cataplasimæ finita adde Axung. Porcin. ʒj.

To these must be added proper Evacuations to divert the Fluxion; to which likewise will contribute a spare Diet and an Anodyne now and then.

If this Tendency or OEsthumenos end in a Mortification, the Signs that evidence it, are a pale and livid Colour of the Flesh and Skin, Vesicles spread up and down, and a sinking of the Tumor; but chiefly it is known from the little
Share

Share of *Heat, Sense or Feeling*, that is found in the Part, and the fætid Smell that arises in Proportion as those are extinguished.

To apply this more particularly to Amputation : A Gangrene when it succeeds that Operation, is either through Age, *strict Bandage, A-bilious, or other vicious Disposition of the Blood.*

First, Age Occasions it thro' a Paucity of Spirits, the Symptoms soon displaying themselves after the Operation; for when Men are already sunk with declining Years, their Spirits on such an Operation, naturally recoil, as it were inwards, to succour the Principals, and keep up winking Life, whence the Stump becomes deprived of that Supply on which the Life of it depends, and so a low Pulse, Qualms, Faintings, Convulsions and cold Sweats ensue, which in a short Time terminates their Misery in Death.

Secondly, *strict Bandage* is a commoner Cause than the former, and Occasions it in Amputations, by intercepting the Blood and Spirits repairing thither, whence the Life of it is cut off : The only Sign discovering to us, a Fault of this Kind, is the acute and vehement Pain

Pain that instantly succeeds tort Rowling; I have known it so great, as that a Patient has chose to undo the Bandage (tho' at the utmost Hazard of his Life, and earnestly so forewarned) rather than endure the Agonies induced by it; nor will it be advisable to preach Patience and Resignation, where the Pain continues more than ordinary sharp, and we have any Room to suspect it proceeds from the Bandage; for tho' the Rigour and Violence may seemingly abate, it will not always be found owing to a Virtue in Philosophy but a Mortification.

Whence Security against a Flux should never be owing to strait Bandage, and when we suspect it is, should make proper and immediate Relief.

Thirdly, A vicious Disposition or ill Habit, no otherwise causes a Gangrene, than as it brings on an Intemperies, Tumor, Inflammation, &c. which at length may suffocate and corrupt the natural Heat.

Let what will be the Cause of a Mortification, or let it soon or late take Effect, the Cure or Recovery is the same; which, that we may the better compass, we are to understand, that whatever has once mortify'd, must and will separate
and

and cast off in Sloughs; so that when it is said such or such Means are proper with a Gangrene, it is not meant that the Part so mortify'd is recoverable by these Things, but only that they serve to prevent the farther spreading of the Putrefaction, and that they hasten the Separation of what is already dead; and these are internally Alexipharmaticks.

R. Lap. Contr. Terva. ʒj. Bezoar Oriental ʒj. Cochincl. gr. xij. divid. Chartul. sex quarum unam sumend. 4 quaq; Hora Superbib Cochl. ij. Julap seq.

R. Aq. Epidem. Theriac. a. ʒj. Aq. Lactis Cerasor. Nig. a. ʒiiij. Syr. Caryoph. ʒj. Lap. de Goa Conf. Alkermes a. ʒss. M. F. Julap.

Or instead of these, any other alexiterial Medicines, Variety whereof may be found in Mr. Fuller's *Pharmacop. Extemporan.* his *Pul. Contra Terva C.* his *Pul. Pestilential.* *Pul. Alexiter.* *Bolus Cardiacus,* *Julap. Idæi* &c.

They help in this Case, by resisting Putrefaction and strengthening the Spirits against contagious Vapors.

Externally a Cure will depend in making our Bandage at all Dressings only retentive in the beginning Mortification, that so a free Recourse and Circula-

Circulation of Blood, may not be impeded: In an unwearied Use of Fomentations, together with Frictions, Cataplasms, and warm Covering, to invite and cherish the Heat; and lastly, in Scarifications, Lotions, and the actual Caustery.

Fomentation must be continued for Hours together, if we expect any Benefit from it, and then the Incisions dressed warm, with Plegits out of the following Lotion.

R. *Spt. Vini bene rectificat & Camphorat.* ℥iv. *Spt. Sal. Armoniac.* ℥ss. *M.*

If you bring the Limb to plump and swell again by these, there is hopes of recovering it, if not, there is none.

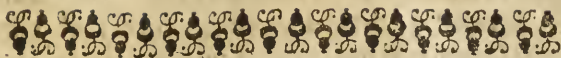
Scarifications need not be made thro' the whole Discoloration, where the Part is not entirely destitute of Sense, lesser Means may prevail; but where it is we need not spare, cut at small Distances, and to the Quick, how deep soever, it makes Room for Medicines reaching where they can stimulate and excite, to thrust off the Cadaverous.

Actual Caustery is the last Refuge, and is without all Doubt, the best Means can be used to resist Putrefaction: To make it answer our Hopes, we should apply it
till

till its Effect reaches the quick Parts, and all the nasty foul Sanies bred from the cadaverous Flesh, is in a Manner dry'd up; then Nature immediately commences her Efforts for separating the Quick from the Dead, which, with less Success, she would contend for, if the cauterizing were done by halves.

When we have used the Iron, we assist Nature's Endeavours for a Separation, by scarifying through the Depth of the *Eschar*, and dressing those Incisions with Lenients and Digestives, using to the whole, Fomentations and Cataplasms as before: If we fail of our End, after these Tryals, I see nothing remains but the Operation again.





C H A P. V.

*A JOURNAL of the SICK on
the Coast of GUINEY.*

AVING been in a Ship station-
ed above twelve Months on the
Coast of *Guiney*, I have dige-
sted such Observations, both of
the Country, and our Sick in particu-
lar (whether *Europeans* or *Natives*) in
the ensuing Sheets as may, perhaps, be
not unworthy the Notice of those whose
Fortune may carry them in the same
Tract.

The Coast of *Guiney* laying so near
the *Æquator*, must of course be very
hot, but there are two Advantages met
there, which are a sort of Counterpoize
to the Sun's Vicinity, and makes it less
troublesome or hurtful than one would
expect, *viz.* the *Breezes* from Land or
Sea, that constantly fan upon us, (Calms
being rare and of short continuance;)
and secondly, *the Thickness of the Air,*
N the

the Horizon being always 'hazey, which by obstructing the Rays of the Sun, Morning and Evening, substract considerably from the Time he is in that Hemisphere; and altho' he comes vertical, Clouds do at most Seasons interpose at his different Altitudes, and break off the Brightness of his Beams, particularly at what we call the Rainy-Seasons, (Seasons which revolve with the Sun all down the Coast, and have their constant Returns in the different Parts of it,) making the *Æquinoctial* cooler for the Time, than *England* in *March*.

This Moisture and Density of the Air, so visible in the Mist and Hazyness of the Horizon, is such, as to molder Cloaths, and rust your Pocket Instruments, Swords, or any Kind of Steel Implements, in a Day's Time, no Country being more noted for this Particular, nor more deservedly; (nay, the same Elevation of Voice, is less distinct and clear, than in any other Country I know;) the Reason of this Mistiness, perhaps may be the Lowness of the Lands, and Multitude of Woods and Trees upon them, with some great, but many small Rivers washing thro' them, which supply these aqueous Vapors, and make the Medium thick;

thick; and this seems evident, because, as you move from Shore a few Leagues, this haziness is lost, as all Ships Experience; and also because no Dews fall (at least it is extremely rare) a League from Shore, any where along the whole Coast, yet are very great every where at Land: It is for this Reason, and because the Country is overspread with Woods and Mangroves, not only obstructing the Course of the Winds, and rendering it far more sultry and hot, but stinking and Offensive; and also, because that Seamen do greedily purchase any Thing to eat or drink, (the Produce of the Country) without regard to the Wholesomeness or Alteration of their Way of Diet, on both which Respects, due Caution ought to be had; that the Shores become in general more pernicious to the Healths of *Europeans*, than the Sea, where those Inconveniencies are better avoided.

Certainly nothing contributes more to the Conservation of Health, than breathing in a wholesome Air, and feeding in one regular and uniform Manner; these are the necessary Materials of our Subsistence, and which we maintain a constant Commerce with; Errors therefore, herein, will in a short or longer

Space of Time, as our Constitution is more or less fitted to resist, show themselves in various Distempers; and altho' we may shun the Stench and Nauseomness on Shore, their piquant and unwholsome Way of feeding, we may yet create to our selves the same or like Errors on Board.

The Air is very much confined between the Decks of a Ship; the Ports that would carry off the bad, and import us fresh Air, being obliged for Safety to be shut, and as great Numbers of Men must lodge there: The Effluvias from Perspiration, and their Breathing together, will load the Air with corrupting Particles, and as it fills with such; Heat weakens its Spring and Elasticity, and by that Means, renders it unfit for receiving again: But if we add to this, the Filth and Nastiness bred from such a Number, by Neglect and Idleness; the Steams arising thence and putrefying the Air, with which they so constantly correspond, must in Time show its Effects: From what does Plague and Pestilence, epidemical and contagious Distempers proceed, but chiefly from a Disregard in this Particular, they reigning, or at least arising first in populous Cities, and in *Summer-Time*, when Stink and Putrefaction most abounds. This

This Observation should teach us Lessons of Cleanliness, to wash and clean the Ship between Decks often, to keep the Men so too, and to let them have as free and frequent Communication with the fresh Air, (by opening the Ports) as may be consistent with Safety, and their other Affairs: Points too much overlooked and disregarded, tho' of the greatest Consequence to preserve a Ship's Company on a Voyage.

Another Remark may be drawn from this general Doctrine against the superstitious Humors or Conceitedness of some Men, who will be as sollicitous in these excessive hot Countries, of guarding against Cold, as if it were in the same Climate with *Norway*; and upon any Indisposition, presently seclude themselves from the Benefit of fresh Air, keeping their Cabins so close, as if they feared a Communication with it of the utmost Danger; a Circumstance that the soundest Constitution cannot abide long, without Languors and great Uneasiness, and the Reason seems plain, from the foregoing Paragraph; there is only this Difference, one Man here, in a confined and close Apartment, gives the same ill Disposition to the Air in Time, as I have

said Numbers do (tho' a little more at large) in the Body of the Ship; for those corrupting Effluvias that continually pass from him by Breathing and Perspiration, must at length load the stagnant Air, *i. e.* the Cabin, with noxious Miasms unfit to be received again; and I have more than once seen the Proof of this, in such who have obstinately persisted in a Refusal of what would have been their greatest Benefit, *fresh Air*, to pass off soon in languishing perpetual Sweats.

Another unhappy Effect I fear of this too great Warmth and ill Management in hot Countries, is that Distemper called the Dry Gripes, and its paralytick Consequences.

Those, who I have known thus tormented, have been first eminently weak and dispirited, by the silly Practice of promoting large and partial Sweats, whereby Cold is more prevalent in the Evenings, to the Constipation of the Pores, and sooner excites Disorders in the lower Belly, than elsewhere, because on Parts not accustomed to be exposed: I rather judge it to this, than any pernicious Quality in the Air, or of strong Drinks and Acids swallowed, because
any

any peculiar Insalubrity in the former, should make the Mischief more general; nor does excessive Drinking or Acids seem likely (either of Rum or Limes) because these are of universal Use with Seamen, in all Climates, without such Effect, unless we will suppose the Weakness and Loss of Appetite lends an accidental Help to those few seized with it.

But to return, there is still a farther Inconvenience attends *Heat and Moisture*, in such warm Countries as *Guinea* and the *West-Indies*, and contributes to the Sickliness of a Ship's Company, and that is, their being productive of infinite Numbers of Insects, (*ab his oriuntur cuncta duobus*,) Ants especially, who raise Hills in *Africa* to 8 or 10 Foot high, Garrisons that will devour a dead Sheep in a Night's Time: Of these we get Variety, and numberless Commonwealths on Board with our Wood, as also Cockroaches, Maggots, and Flies of various Species.

I shall not pretend any of these to be the malignant Species that blight and destroy Plants, or effect Murrain in Cattle, or Plague among Men; but this I may be Confident in, that by nesting themselves in infinite Numbers among

dry Provisions, they prey on the Heart and Substance of it, and so make them less Salutory and fit for Nutriment. Salt and Heat does the same by wet Provisions.

After this *Præloquium*, I come to account for the Sickness and Mortality of our Ship's Company, at the Island of *Princes*, July 1722, where we arrived to clean and refit, all in very good Health, although we had then been full four Months on the Coast of *Africa*, and is a corroborating Circumstance, that Newness of Provisions, and want of Opportunity to debauch on Shore, are two main Preservatives of Seamen's Health.

I might here first take Notice, that the sudden Phrenzies, Convulsions and colliquative Sweats, that so soon terminated some of their Lives, was suspected, and with Reason, to proceed from eating wild *Maniocoes* and *Yamms*; Roots, the Growth of the Island, and when cultivated and duly prepared, is a common Food of the Natives, but otherways, highly noxious and unwholesome: I say, this might be farther insisted on, but as the Majority plainly became infected from more explicable Causes, I shall endeavour to point them out: The Symptoms

toms attending, and my Method of proceeding.

First, of the Causes : The Condition of cleaning Ships at this Island, are unsuitable to *English* Constitutions, for we are put under a Necessity of building Tents, and employing half our Men on Shore, for their Security, and for the Work that is wanted at them ; whereby they are more at their own Wills and Disposals, than without such a Necessity, it is proper they should ever be trusted with ; being ungovernable in their Actions and Appetites, pilfering from the Negroes, and debauching their Wives, and (excepting a very few) most irregular in their Way of Living, eating and drinking whatever comes in their Way, (the Produce of the Country,) without any Enquiry how proper or wholesome for Food, or having any Regard to Custom and Manner of Living.

Another Cause, is the extraordinary Heat of the Sun, (now in the Zenith, more stifling and troublesome,) which the Men are forced to work in, and for a longer Time every Day, on such Occasions as *Cleaning* : These Heats night, or on the Shore, at the Tents, vastly surpass those at Sea, not only on Account

count of the Earth's stronger Reflection, but also from surrounding Woods and Hills, that stops the Access of Winds and refreshing Breezes.

They are still more offensive, in that the setting Suns are succeeded with a Chillyness in the Air, filled with aqueous Vapors, which condensing very fast, by the interruption the Hills give to their Motion, fall every Evening at the Shore, in cold and prodigious Dews, sufficient in a few Hours, to wet all the Beds thro' a double Tent.

Lastly, these alternate Heats and Dews are more hurtful to Seamen, from their Irregularities of Life, every Day's Labour must be recruited, and this they do with Palm Wines, plentiful on this Island, and tho' a natural Distillation from the Tree, does, without fermenting, become intoxicating, in large Quantities; and what is worse, they frequently lay down in these Inebriations, exposed to the Chills and Dews of the Night, whence a sudden Check is given to Perspiration, (at a Time it is most wanted,) and consequently Fevers more or less Malignant, are brought on as their preceeding Conduct has made those other
afore-

aforementioned co-operating Causes, more or less powerful.

Secondly, of the Symptoms. The Fever generally began with a violent Pain and Dizziness of the Head, Nausea, Vomiting, and Restlessness. After the first Day, the Patient that was dry and scorching, falls into excessive Sweats, the Consequence of which, is sudden Prostration of Strength and Faintness, an inextinguishable Thirst, and involuntary Urining, the Pulse neither high nor quick, but altering on light Occasions: In the Progress came on either Delirium, Convulsions and Speechlessness, or sometimes a Lethargy; under the former they commonly expired at four or five Days End, with the latter, continued a Day or two longer.

A few Exceptions may be made from this general Rule, of some who languished fourteen, or more, Days, but then it was not the malignant epidemical Fever, but intermitting, and occasioned, as I hinted before, from a superstitious Humor of knowing better than ordinary, how to avoid the Evils of a hot Country; some of these affected Gentlemen, I have seen faint rather than take
a Glass

a Glass to inflame their Blood, and wear Flannel and two or three Coats to resist the Coldness of the Air, that, to me, seemed more like the Steam of a hot Oven; yet such, kept their Senses entire, and I may truly say of them, when they died, that they were dissolved.

The Nastyness necessarily bred from a great Number of Sick in a Ship, seldom washed or cleaned, help'd to spread the Infection, and Danger aggravating the Symptoms, and at length, in a Manner, disabled us from carrying on the Work, required to equip us for the Sea again, where in my Opinion, rested our best Hopes of Recovery: The present Comfort we had of regaining such a Condition, was, the salubrious and healthful State of the Islanders at this Time, who by Temperance (natural to all the *Seignior* Countries) keep off many Evils, and is the best Physick for all Climates.

Thirdly, my Method of proceeding, as it respected the Well and Sick, Prevention or Recovery.

To preserve those who yet continued in Health, we separated the Ship entirely to their Use, and moved the Sick on Shore to the best Houses and Conveniences

encies that could be hired, washed the Decks every Day, did not suffer them to work in the Heat of the Sun, (excessive under the Hills, from ten to four in the Afternoon,) nor to lay at the Tents, avoiding by that, the Opportunities of Irregularity, and the Dampness and Dews they became exposed to after.

The Sick had yet this Unhappiness, that having destroy'd their Healths at the Cost of all they had, (their Cloaths, which they had bartered for Drink and Edibles among the Negroe Servants,) they were now destitute, having neither Bedding left, nor so much as a Shirt to cover Shame, empty Hammocks being their Lodging, and the Roofs their covering; a Misfortune that would, in my humble Opinion, become the Wisdom of the Admiralty to provide against. The Commanders of *French* Ships of War have always contingent Money advanced, and by that the Means of Necessaries and fresh Provisions lodged with them for the Sick, wherever they come, and seems of absolute Necessity in remote Parts, to administer the Comfort which the Poverty and Obedience Sailors are under, disables them from doing to themselves :

selves: Dispensed frugally would be of inconsiderable Charge to a Government, and with Strangers exemplifies a Christian Concern for our Brethren.

I begun the Cure with Emeticks, as the best Foundation, I thought, in Fevers from Intemperance; and found them so far good, as to procure a little transient Ease and Rest, and so seemingly better for it the following Day; yet at Night, Fever and Head-ach would return with greater Violence, and break off in some lucid Interval again in the Mornings, at which Seasons of Remission (chiefly) we bled them in the Foot three or four Times, perhaps in eight and forty Hours, according to the Humor and Practice of the *Portuguese*, who, as they presume themselves best Judges in the Country Distemper, build their Cure entirely on it, and repeat it much oftner.

I imagined after this Operation, *Tinct. Serpent.* as an Alexipharmick and Sudorifick both, would best answer to these Symptoms, by expelling in the Way Nature seemed to have its Tendency.

R. Tinct. Serpentar. ʒij. Aq. Cinnam. H. ʒj. F. haustus.

Or, R. Lap. Cont. Teru gr. xiv. Conf.
Cynosb. q. s. F. bolus.

But was mistaken; as they immediately lost all Appetite, those large and perpetual Discharges by the Pores emptied the Vessels, and hurried on extreme Languors, Faintness and Convulsions, dying in three Days, *quæcunq; Inanitionem nimiam producunt Causas Convulsionis fieri.*

With others again, I try'd Julaps, Volatile Drops and other Cardiacks.

R. Vin Alb. Aq. Font. a. ℥iv. Aq. Cinnamon. F. Sacchar. Albiss. q. s.

R. Spt. Sal. Vol. ℥j. Lavendul. ℥ij. Ol. Caryophill g. x. *hujus instilletur g. xv. in Aq. Hord. vel Cochlear. Julap sequent. bis in die.*

R. Aq. Hord ℥viiij. Tinct. Croci Aq. Epidem. a. ℥j. Margarit. ℥j. Sacchar. Albiss. q. s. Empl. ex Cephalic. vel pice Burgund totis pedibus Applicaterant embrocating the Soles and Palms, cum Liniment. Saturat. Tinct Castor. vel Ol Succin.] & ad Regionem Umbilici Aliquando Empl. ex Galban. cum. Ol. Macis.

When the Patient was found approaching either to a Delirium or Sleepyness (one or other of these Symptoms certainly

ly ensuing) then these Prescriptions were accompany'd with Vesicatories both to the Arms and Legs.

I try'd others with testaceous Powders, or the Cortex, and a strong Harts-Horn Drink, in hopes to tie up so loose a Texture and Compages of the Blood, and prevent the Expence of Spirits in such copious Sweats; but all equally unsuccessful, few survived the Infection above six Days; the excessive Heat of the Climate, and an inextinguishable Thirst to such a predisposed Disposition of the Blood, quickly evaporating both Strength and Spirits: The last Symptom and sure Fore-runner of Death, was commonly Convulsions.

This unhappy Sicknefs and Mortality had very nigh reduced the Ships to a Necessity of waiting a Supply of Men from *England*; but as such a Resignation is the last Remedy to be flown to, in remote Parts of the World. So we rather endeavoured to put a stop to it, by pushing to Sea and changing the Air and Way of Living.

We soon found an Advantage by this Change, to our well Men, the epidemical Rage lessening in proportion to the Time of leaving those enumerated Causes
of

of Infection, and enjoying a cooler and more salubrious Air.

For those few who had conquered the Severity of the Fever, and were weak, we were still perplexed: As the Wine and the few Surgeon's Necessaries, provided for such Occasions, were all long ago expended, there was not *only* a bare want of them to complain of, but the absolute Necessity of resorting to the Ship's Victualling for supporting Life, bad in Kind, and in weak and reduced Conditions, we found had this melancholly Consequence, of inducing a feverish Heat and thirst, and giving Birth to Fluxes, so that what the one spared the other destroy'd.

Fluxes took their Rise here from Poverty of the Blood, bad Diet, Nastiness, and an infectious Air consequent thereto, and necessarily bred from narrow and close Confinement.

They were distinguished into Diarrhæa's and Dysenteria's: *Diarrhæa alvi laxitas. | Dysenteria est alvi cruenta ac Purulenta, dejectio a materia acri Intestina rodenti.*

The Intentions of Cure seem common, viz. To embrue the Blood with Restoratives; to allay the painful Sense of the

nervous Fibres with Opiats ; and to shut the Mouths of the Vessels, or heal their Erosions with Stypticks and Astringents.

Evacuations always preceed, not as they so immediately answer to either of these Intentions, as that they fit the Body for receiving Advantages by Opiats and Astringents.

For an Emettick R. *Pul. Ipecacuan* ʒi. *cum Oxymell Scillitic. q. s. F. bolus.*

A Purge, R. *Pul. Subtiliss. Rhabarb* ʒij. *in Forma boli vel in haustul. sumend. ad tres dosibus.*

After these Evacuants, I continued the first Complainers to the *Elect. Dris. Morton*, in the Dose and Manner directed, and found some Success: That expended, I kept others to *Dr. Cockburn's Elect.* and found it did no harm: Both finished, I made up as follows.

R. *Terra Sigillat. Bol. Armen. ʒj. Cort. Granat. Flor. balaustior. a. ʒj. Conf. Rosar. ʒiv. Tereb. q. s. F. Elect. sumend. quantitat. nucis 4æ quaq; Hora superbib. Haust Decoct. Alb.*

With others, a Bolus of *Diascordium* alone every Night, or a small Pill of *Laudanum* rowled into a Dose of the *Elect.* Their ordinary Drink of *Hart's Horn. R. CCC. ʒiv. Cinnamom. Contus. G. Ara-*

G. Arabic. a. ʒij. Cort. Granator. & Querci a. ʒj. Aq. Font. lbvj. Coq. ad 3a. partis Consumptionem.

In those Dysenterical, I breathed also a Vein, now and then, and administered Calomel, finishing with the following, which I recommend as a Medicine of no small Efficacy.

R. Elect. Fracastor. ʒj. Alum Commun. gr. iij. Laud. liq. Gutt. xv. mane & Ves. peri sumend.

From the Process (tho' not attended here with much Success) may be deduced a useful Observation or two.

First, That where the Causes producing Fluxes irremediablely subsist, as with Ships in foreign warm Climates, there is little hopes of Success, want of Diet and a bad Air, are too great Impediments for Medicines to contend with, and renders ineffectual the best Prescriptions: The eroding Particles, where we have no healing Nutriment, acquire greater Strength, and the Flux becomes habitual, admitting then only Palliatives (*i. e.* Opiats) which give Respite indeed, but of little Consolation.

Secondly, Astringent Electuaries have their Efficacy from the Quantity of Opium administered in them, and those

recoverable soon find its Effect after Evacuations; if not, they lose of their Virtue, by the frequency of Repetitions, the Stomach palls and nauseates, and then of Course the Patient proportionably Emaciates till Death.

And lastly, from experienced Want, I would recommend a triple Quantity of some Medicines usually put up for Sea-Service, *viz.*

The *Cortex*, *Rad. Ipecacuan.* & *Rhabarb.*, *Opiates*, *Aq. Cinnam.* *F. CCC.* *Ther. Vene.* *Alumen Commun.* *Elect. Fracastor.* and *Antidysenterick Electuaries*, Practice in a Manner being confined to them, and no Hospitals to lessen the Expence.

I shall conclude this Chapter with some Notices on the Distempers of *Africans*.

The Negroes are a People troubled with few of the acute or chronick Distempers of the *Europeans*, owing principally, I think, to a happy Want, and ignorance of luxurious Living; feeding, for the most Part, on Grain, Herbs, Roots and Fruits, bathing sometimes; and all constantly anointing with Palm Oyl or Tallow, which only, as it is an Exercise, does, with a little fishing, travelling and dancing (their cheif Amusements) expell easily the Recrements of
such

such Food, and contributes to the better Health and Longævity of the Coast Negroes, which we must distinguish as abundantly more sprightly and active than the Inland Natives (whom I chiefly design here to regard, because of them, the Bulk of Cargoes consist:) They have been totally destitute of this *European* Correspondence that has mended the others, and are to appearance but a few Degrees in Knowledge above Beasts.

From *Sesthos* River windward, many of the Negroes have large Exomphalos's thro' the Ignorance of Midwifry, and those of *Whydah* (where the chief Slave Trade is) are more subject to Small-Pox and sore Eyes.

This I have thought fit to premise in general, the Distempers I design to speak to, as more properly their own, are the *Sleepy Distemper*, the *Croakra*, the *Taws*, and the *Chicoes*, of each briefly.

The Sleepy Distemper.

THE Sleepy Distemper (common among the Negroes) gives no other previous Notice, than a want of Appetite two or three Days before; their Sleeps are sound, and Sense of Feeling very little, for pulling, drubbing or whipping

will scarce stir up Sense and Power enough to move, and the Moment you cease beating, the Smart is forgot, and down they fall again into a State of Insensibility, drivling constantly from the Mouth as if in a deep Salivation; Breath slowly, but not unequally, nor Snort.

Young People are more subject to it than the Old, and the Judgment generally pronounced, is Death, the Prognostick seldom failing; if now and then one of them recovers, he certainly loses the little Reason he had and turns Idiot.

In searching for the Cause of this Distemper, it will be necessary to repeat what I have above observed, that the Bulk of Slave-Cargoes mostly consist of Country People, as distinguished from the Coast People apparent, if the principal Way of supply be considered. At *Whydah* more Slaves are bought, than on the whole Coast besides, and why? the King of that Country, and his next Neighbours, understand Sovereignty better than others, and often make War (as they call it) to bring in whole Villages of those more simple Creatures inland, to be sold at Market, and exchanged for the tempting Commodities of *Europe*, that they are fond and mad after.

On

On the Rest of the Coast, there are trading Towns dispersed up and down, under the Direction of *Cabiceers*, or chief Men, who, as their Power is weaker and more controulable, expect fewer Slaves, and those they do, come mostly by stealing, for they go armed into the Country and seize those defenceless Creatures, a few at a Time, and expose to sale to the next Merchant Ship that touches in their Road.

To return, the immediate Cause of this deadly Sleepyness in the Slaves, is evidently a super-abundance of Phlegm, or Serum, extravasated in the Brain, which obstructs the Irradiation of the Nerves; but what the procatartick Causes are, that exert to this Production, and eclipsing the Light of the Senses, is not so easily assign'd.

We find sometimes in *Europe*, that Enormities in the Non-Naturals, Surfeiting and Drunkenness does gradually, as Age and Custom advances, weaken the Tone of the Brain to the Admission of ferous and excrementitious Humors, inducing Sleepyness, &c. but here the Case is different, they being young People that are generally afflicted, and who have been destitute of the Means of Surfeiting.

I shall ascribe the Cause to *Cold and Immaturity; to Diet and Way of Living, and to the natural Weakness of their Brain*: Some or all of these Causes co-operating to it.

In Immaturity or Childhood, it is a common and true Observation, that more of Phlegm and recrementitious Humor is bred than at Manhood, because the Fibres and consequently the Faculties resulting from their Constitution, have not attained their due Spring and Perfection.

Promoted here *secondly*, by their Diet and Way of Living. At home it is mostly on Roots, Fruits and Herbage, greedily devouring such as are wild and uncultured, which, together with the intolerable Heats of the Sun, weakening the Concoctive Faculty, and their Inactivity renders a very recrementitious Nutriment: Their Indolence is such, (when shipped on Board for Slaves) as to be entirely Dispassionate at parting with Wives, Children, Friends and Country, and are scarcely touched with any other Sense or Appetite, than that of Hunger; and even in this, for want of Custom or Instinct, they cannot distinguish proper Food, nor know when to leave

leave off, voraciously eating, tho' Victuals be never so dirtily cook'd, and whether the Flesh be raw or dressed, whether of the Gutts or a Surloyn; a Practice also that may sometime by overstretching the Fibres of the Stomach, Occasion Crudity and Indigestion.

And lastly, by their Sloth and Idleness the Blood becomes more depauperated, and those récrementitious Humors bred from it; that Exercise would throw off through the proper secretory Organs, are here disposed towards the weakest Part, which in the Generality of Negro Slaves I take to be the Brain.

Thirdly, the natural Weakness of the Brain, I am apt to think, the principal Cause of this Distemper. Doubtless that Part gains Strength by Exercise, *i. e.* by the Employment of our rational Faculties, as well as the Muscles and external Fibres of the Body; and since the *Africans* are hereditarily Ignorant, destitute of all Art and Science, or any mechanical Knowledge to exercise the Brain, it consequently grows weaker in its inward Structure and Recesses; and fails together with the Judgment and Passions.

The Imployment of the Soul does not only in Metaphor, but really help

to

to strengthen the Brain, as that again (the Condition of Mortality) by the Firmness of its Texture, and Goodness of Disposition does the intellectual Faculties; obvious in the clear, wakeful and unclouded Understandings of Men of Learning and Genius, compared with the Stupid and Ignorant, in whom the Soul (*i. e.* its Operations) and the Brain are reciprocally found strong or weak: Where Ignorance and Stupidity reign therefore, and neither Sciences nor Mechanicks planted for exercising the Faculties, the Brain must grow weak, and such a State of Thoughtlessness and Inactivity, dispose it for the Reception of Serosities.

The Cure is attempted by bleeding in the Jugular, quick Purges, Sternutories, Vesicatories, Fontanels, and sudden Plunges into the Sea.

The Croakra (so called by the Negroes) is a cutaneous Distemper, somewhat like, but not so inveterate as, our Itch, being large Blotches and Blains dispersed up and down, and seem to arise on Board Slave-Ships, from a sudden Change to an unusual and course, if not a salt, Diet; contributing to which, perhaps, may be a Neglect and Carelessness in drying the Skin in warm Suns, after it has been

wet with salt Water: It is true, they do not so soon feel the Effect, but Repetition in the End, has its Share in helping to fret and chap the Cuticle in this Manner; at least, I imagine so, because refraining from salt Food and Ablutions, and feeding them wholly on Rice, Farine and Beans, (the common Victualling,) does, together with constant basting in of Palm Oyl, generally smooth and dry it again. Where this latter Practice obtains most, (*viz.* the windward Part of the Coast,) there they are the least troubled with these Eruptions, and where the Custom is more intermitted, (or salted Tallow instead) it becomes more frequent.

In speaking to the distempered Skins of *Africans*, it falls naturally in the Way, to subjoin a Word or two of their Colour.

From the River *Senega* in *Africa*, 15° N. to almost its Southern Extremity in 34° they are all black and wooley, the natural Cause for which, must ever perplex Philosophers to assign; I know *Malpighus*; and from him others ascribe these different Colours in Men, to a Tinge from that reticular or mucous Substance under the Cuticle, not considering the Question as strongly returns: How that Substance becomes so oppositely coloured

as it does, in this remarkable Division of Mankind, into Blacks and Whites? The gradations *Europeans* make towards a Mulatto dye, seem well enough solved from the Fineness of their Skins, and approaches to the Sun, whose Heat more or less easily eliminates the thin Parts of that Mucosity, and leaves the Remainder dark, as the clearest Liquors, they say, will have some sediment; but how so entire and opposite a Change is made as in Negroes, is not so soon answered: There are these Objections; first, that the Proximity of the Sun has not the same Influence on other Animals in *Guiney*, nay, their Sheep have hair contrary to that closer Cō-texture of the Skin, which is supposed to contribute to the Production of Wool in the humane Species. Secondly, no *European* totally changes by length of Cohabitation with them, and in Generation begets a Mulatto Race, which ever remain so. Thirdly, the Palms and Soles of Negroes Feet, by Friction and constant Use, become whiter than other Parts; so does the Cuticle, supplied in other Places of the Body, after Scalds, or being otherwise peeled off, which could not well be methinks, if the Colour of it were owing to the aforesaid Mucosity, unless Nature

be

be allowed to take partial Methods in tinging of it. Fourthly, *Americans*, or other Nations in the same, or Parallels of Latitude, where the Sun equally Influences, are not black: And lastly, even in this *Negroland*, there are a Race of a bright yellow Colour, as tho' painted: I saw one of these in the next Town above King *Pedro's*, in *Rio Sesthos*, who was woolly, and, in every Respect else, a Negro, (pardon the Impropriety,) but in Colour.

From the whole, I imagine that White and Black must have descended of different Protaplasts, and that there is no other Way of accounting for it.

The Yaws.

Y A W S is their general Name for the Venereal Distemper in all its Stages, whether it be from the sparing and necessitous Circumstances they live under at Home, or a better Salubrity of Air, or both; the Malignancy is commonly better subdued, and the Symptoms kept from raging in that unhappy manner we find with us, who aggravate the Infection with Irregularities and unskilful mercurial Processes, which the Negroes sometimes Experience also, when they leave their own Country,
and

and unluckily launch from Hunger and Temperance, to Plenty and a Liberty of satisfying their greedy Appetites, especially with strong Liquors; then we may see among them (particularly in the *West-Indies*,) very ghastly Spectacles, Eruptions, Tumors, Blotches and Ulcers, chiefly of the Face and Head.

I should descend more particularly to the Nature and Cure of this Disease among Negroes, did not the Similitude rank them with our Pox and Clap, to which I have designed the following Chapter, and shall only here take Notice in general, that Mercurials more easily take Effect with them than in northern Constitutions and Climates.

The Chicoes.

CHICOES or Worms, is another Distemper common with them, tho' not so properly said to be peculiar. Mr. *Jenkinson* in his Journey from *Moscho* to *Boghar* in *Persia* (28° N.) says they were bred in the Legs there to an Ell long, and ascribes the Cause to drinking unwholesome River Water. And *Knivets* Voyages and our own Experience confirms their Breeding in the *West-*

West-Indies, tho' smaller and more Customarily in these Toes.

I cannot agree to what most Travelers advance (who have visited warm Climates and mention these Worms) of their being bred from the Seed or Eggs of such Insects swallow'd in drinking unwholesome stagnated Waters: Any Thing which has its original from so cool an Element, in my Opinion, should sooner be stifled and destroyed by the great Heat and concoctive Faculty of the Stomach, or at least before that Course of Circulations can be finished, as transmits them to the external Parts, where they increase and maturate: I rather think, since they are only the exposed Parts of the Body, they generate in, ofteneft in the Legs and Feet, and seldom or never in Children; that they are externally convey'd, and happen from Mens constantly walking and trampling naked in such Waters as contain them.

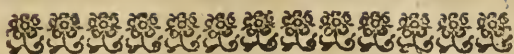
Among the *Africans* they are found to breed in most Parts of the Body, between the Flesh and Skin, are white and slender as a Straw, and draw out perhaps to a Foot and Half; I have heard sometimes to an Ell long.

What

What Life, or how their Maturity is promoted, I am not able to say; but after Eruption of the Tumor, they are to all appearance dead.

The Part where the Worm is lodged, gradually tumefies to the Bigness of an Egg, hard and painful, when left to their own Management, and without due Application to assist Nature, they are a Month, two or three in suppurating, and then mature but little. With the Eruption comes out one End of the Worm, perfectly inanimate, which they haul out gently an Inch or two every Day, breaking off the perished Part (without) as often, and cover the Wound with nothing but a Bit of Linnen to hinder any ill Effect from the Air or cold, Embrocating with a little Palm Oyl: As the Worm is expelled, the Pain and Tumor abates.

English Surgeons do sometimes take a more improper Way of Cure; impatient of waiting for this natural Expulsion by Suppuration, they open the Tumor, which is sure to make Ends, one of which is frivolously accustomed to be rowled on a small stick daily; whence a greater Indigestion happens, and an Aggravation of the Symptoms.



CHAP. VI.

Of LUXATIONS.

 O understand Luxations, it is principally necessary to be instructed in the Articulation of the Bones, in what Manner they stand in respect to one another; that so we may not only know the Accidents we are called to, readily, but the Remedies they are capable of. In the Limbs, whether perfect or imperfectly luxated, how, and to what Degree, Extention is Necessary? That we make it neither needlessly nor violently; and in other Parts, the most conducive Methods of Recovery: Yet in none of these do I propose to say every Thing necessary, the Chapter is only Notes, and to imprint some better Knowledge on the Subject, then it is apprehended any Thing writ on it hitherto has done.

The Articulations are by *Synchondrosis* or *Diarthrosis*, *i. e.* for an obscure

or manifest Motion; the former by intervening Cartilages (as the *Vertebræ*, *Costæ* and *Sternon*) and those do very difficultly luxate, not only because close and numerous for necessary Stabiliment, and Defence to the vital Parts, but also, because the more obscure the Motion, the harder and dryer those Ligaments and Cartilages grow, which tye them together, rendering such Articulations stronger and more firm than if made of one continued Bone.

The *Diarthrosis*, which chiefly concerns Luxations, is divided into *Arthro-dia* and *Ginglymus*; the one for rotatory Motions of the Limbs, the other only Flexion and Extension; the former Sort, because the Motions are of great Compass, and equally to either Side, have a membranous Bag to link the Extremities for their truer playing in the Socket, and which supplies them with a Mucilage for facilitating it; and the latter have the Ligaments on the Sides, much stronger than before, or behind, that the Joints might not easily slip.

Instances of *Arthro-dia*, are the *Os Femoris* and *Ischium*; *Humerus* and *Scapula*, where the single round Head of
one

one Bone is received above, into the Cavity of another.

The *Ginglymus* is of three Sorts. First, when the End of a Bone has two Protuberances, and one Cavity, and that with which it is articulated below, has two Cavities, and one Protuberance, to answer the Reception and Insertion of each other, as the *Humerus* and *Ulna*, *Os Femoris* and *Tibia*. A second and third Sort (not so material to our present Purpose) are of the *Ulna* and *Radius*, and the *Vertebræ* amongst one another.

Causes.

THE common Causes of Luxation, are Falls and Blows in the Superior, and violent Extentions by sudden Slips in the inferior Limbs; uncommon, is an Elapse from some internal Cause, as when a heap of Humours is thrown on the Joynt, relaxing the Ligaments.

Signs.

THE Signs are a Loss, or at least very imperfect Motion of the Joynt:

A Cavity whence the Head of the Bone has receded, and consequently a Protuberance where it is lodged. The Limb will appear shorter or longer, and the Pain attending it, more or less, according to what Bone is dislocated; and if it continue but some Hours unreduced, a Numbness; and if a long Time an Atrophia.

Signs of Reduction must be the Reverse of these; the Limb will look, in all respects, answering to its Fellow, and Pain abated.

Prognostick.

Children and Women, by their tender and lax Constitutions, have them more easily restored than Men; young Men than old; and in these again, better when recent, than of any Time standing; for in Age there is a natural Aridity and Stiffness in the Joints, increased by delay in Reduction, which necessitates a more than ordinary Extention, and that distracts the Fibrills, constituting the Nerves and Tendons, not easily recovered, but oftentimes ending in Weaknesses, sometimes in Palsy
and

and Emaciation: The same may be said of frequency of Luxation in any Joint, tho' the Person be robust and youthful.

Intentions.

INTENTIONS of Cure, are Reduction and preventing Accidents. To the former belongs *Extension* and *Reposition*; to the latter, *Deligation* and *Collocation*.

Extension is absolutely necessary for restoring any Joint displaced, the Muscles serving to the Motions of it, not only being useless for the Time, but painful: And this Extension we should take Care be not made by Jirks, but smooth and strong, in Proportion to the Depth of the Cavity the Head of the Bone has slipped into, which depends on the Make of the Muscles, and the Edge or Spine of the receiving Bone, (whether superficial or deep.

Reposition.

WHEN you have the Limb at a proper Extension, and have afore considered which Way the Head of it has lapsed, whether *down, up, forward* or

backward, you are at that Instant to direct it the contrary Way, and it will fly in, facilitated by the Make of the Socket, which rounds inward (where the Joints have rotatory Motions) for the more close imbracing the *Epiphysis*. If there appears any Difficulty in Reduction, either from the Time, (Hours, or Days it has been out,) or the Depth it is to be extended from, it will be convenient before a Tryal with Extension, to use oyly soft Embrocations about the Joint, to relax the Parts for an easier Submission.

Deligation and *Collocation*, are to preserve the Joint restored, and prevent Accidents: The former can be explained only of Bandage, but is usually understood to comprehend the Applications, which should be of Medicines that can abate Pain, resist the Influx of Humors, and strengthen the Parts.

Such are Embrocations of *Ol. Rosar. Terebintb. a. p. æ.*

Ung. Dialthæ. Spt. Vini. Rect. a. p. æ.

Or, *Ol. Cham. Hy-peric. Misce q. v.*

And Emplaisters *E. Bolo, de Minio, ad Herniam*, or that N^o 31.

Rowling will be different, according to the Part to be rowled, and may be found

found adapted in Mon. *le Clerk*. We may only observe in general, that a thick Compress of Linnen is to be under the Rowler, on that Side the Bone fell out, there being more Suspicion of its tending that Way again.

Collocation is to be a Position contrived to the Ease of that Joint in particular, that has been dislocated, and therefore varies according to where the Case is. In the inferior Limbs, a little Elevation, and a confined quiet Posture for a Fortnight or three Weeks: And if the superior Limbs, they should be so slung and sustained, as that no succumb-
bring Weight, of the Parts below, incommode it. In all, the Bandages and Covering should be soft and Smooth, a proper Restraint in Diet prescribed, Venesection, sometimes Clysters and cooling Emulsions.

Bones joined for obscure Motion, seldom luxate; but when they do, are of difficultest Recovery.

A Rib may slip in or out-side. The in-side Luxation is capable only of internal Prescription, Time and Patience, to relieve the Pain and Difficulty of Breathing, attending it: The out-side indeed may be raised to

its Place by an Elevation of the Arm, and pressing with the Fingers at the same Time ; but the retaining it there, is not altogether so easy. So again the *Cavicle* may be easily replaced, by putting some Convex Body between the Shoulders, and pulling both back at the same Time ; but then how long it will be retained, may be guessed from the incommodious Make, insufficiency of Bandage, and Contraction of the Pectoral Muscle, which will ever be Impediments to preserving a true Reposition.

The *Rotula* also may start outward, and by keeping the Leg strait, be thrust into its Place again ; but as the Muscles *Reclus*, *Vastus Externus* and *Internus*, and the *Crureus* are inserted into it, their Contraction will very much elude any Skill to keep it so.

The last I shall mention, of the Bones articulated ; for obscure Motion are the *Vertebræ* or *Ossa Spinæ Dorſi*.

What is meant by a Luxation of them, I do not well apprehend : A Fracture of the Processes may be by Shot or Blow, and recoverable ; but a Luxation must be ever, I think, of fatal Consequence, as it is the Effect of the greatest Strains, and makes a Compression on the Spinal-

nal-Marrow, whence the Nerves, serving to Sense and Motion, arise.

To form the justest Notion we can of these Hurts, we should meditate on the Construction of the *Vertebræ*; they are short, plain on the upper and lower Sides, Convex before, and the Processes by which their Juncture is made, are the hardest Parts of them; seven in Number, two lateral, one acute on the hind Part, and four oblique: Of these latter, the two ascending are received into small Dimples of the two descending Processes of each superior *Vertebræ* of the Neck and Back, and the reverse in those of the Loyns; so that the Articulation is a Ginglymus: Besides this, they are tied together by a strong Membrane forward, the whole Length of the Spine; behind, by the Tendons of the Muscles, and to one another by intervening Cartilages, *but not distinct*, which are thinnest backward, to yield to the Motions of the Body: These Processes together with the hinder or concave Part of the Body of *Vertebræ*, form a Hole for the Descent of the Spinal-Marrow, lined with a Membrane.

The two first of the Neck (*Atlas* and *Epistropheus*) have this in particular, that the oblique Processes of the former receive the two ascending ~~the~~ Tubercles of the Head, on which Articulation it moves backwards and forwards: The other has a long Process, called *Dentata*, ascending between the two oblique, and is inserted into a Sinus, in the fore Part of the great Hole in the *Atlas*.

On this Tooth like Process, the Head and *Atlas* turns half round, but is hindered from going farther by the Ligament that ties it to the Head, and another that fastens it to each Side of the Sinus. A Luxation or Fracture of it, is what we understand by a Person's breaking his Neck, and must be mortal, tho' the Fracture not always immediately. I remember one *Sculthorp*, in her Majesty's Ship *Lyon*, 1712, being very drunk, fell down the Fore-Scuttle, and fractured this Process, his Head fell like a dead Lump to either Side, and seemed so loose that his Face might have been turned almost behind: He continued speechless, insensible, and with some Difficulty of Breathing, but lived twelve Hours after it.

The

The *Vertebræ* of the Back have the least Motion, because their Cartilages are thin, their acute Processes long, and because the Ribs are fastened to them. The Processes of these *Vertebræ* may be fractured by a Shot grasing (as I observed before) or other external Stroke, and yet be of no considerable Consequence, but a Luxation (considering their close Conjunction) seems impossible. I have heard indeed, of a transverse Process being fractured in stepping over a Kennel, with a Burthen, and think it probable, because there are many Muscles arising, or inserting themselves into these Processes, that are the Strength of the Back; but if their Contraction can effect a Fracture, it will differ from the other Causes mentioned in its Consequence, and bring greater Lameness, because it must happen within-side their Insertion.

The common Hurt they are subject to, is the Distortion we call *Bunch-back'd*, and proceeds from particular Weakness in the Ligaments and Muscles; for if those behind, thro' any Cause relax, as is too frequent in Infancy, from the Carelessness of Nurses in Rowling, and continuing a Child in one Posture;
why

why then their Antagonists remain perpetually contracted, whereby the oblique Processes which join the *Vertebræ*, part from one another, and the Space fills with a viscous Substance, not unlike what we call *Callus*, in any other Bone: And if the Misfortune begins from the Birth, before Ossification, then the *Vertebræ* themselves participate and enlarge the Deformity.

The *Vertebræ* of the Loins, by the Distance of the acute Processes, and Thickness of the Cartilages, bow most, and therefore most likely to recede at Manhood, by violent Strains in Labour or Exercise, and such are commonly called broken back'd, some of which we may have seen to go almost double, lame, and stiff for their Life-Time.

This Misfortune, I do not apprehend proceeds from any Disconnection of the Bones, for then the Bent would be sudden and immediate Death ensue; but it is, as has been observed in Distortions of the Back, from the partial suffering of those Muscles that extend and erect the Body. The *Sacrolumbus*, *Longissimus Dorsi*, *Transversalis Dorsi*, *Interspinalis*, *Quadratus lumborum*, &c. These having their Tendons inserted into the transverse

verse Processes, as heavy Burdens, or excessive Strains, shall weaken their Action, or possibly by Contraction, (for they are of prodigious Force,) fracture a Process; why then the Muscles that æquilibrate these, contract forcibly forward, and bow the Body, much more than could be accomplished at the Back, not only on Account of their superior Force and Strength, but because the *Vertebræ* here have most Motion towards it, and no Ribs to sustain against their yielding.

These Hurts are accompanied with extraordinary Pain and Inability of Motion, a Palsey or Numbness of the Arm, when it is the Back or Neck: The same in the inferior Limbs, when it is of the *Vertebræ* of the Loyns, sometimes also of the *Sphincter Ani*, a Suppression of Urine, difficult Breathing, and the like.

External Applications are in common with those of the Joints: An anodyne Embrocation, corroborative Emplaisters, retained with Sash or Napkin round the Body, and, above all Things, Repose, to which a soft Bed will contribute; Venesection, a proper Regimen, and, as the Party gains Strength, Iron Boddice. But because these Hurts commonly affect one or other of the Bowels, it is usual
with

with them to prescribe Vulneraries, the
Simples of *Sperma Ceti*, *Lap. Hibern.*
Cerevis. Prussia, Caudle, &c.

In spitting or in pissing of Blood.

R. *Cons. Rosar. Rub. ʒss. Coral. Rub.*
G. Arabic. a. ʒj. Miv. Cydonior q. s.

Or, R. *Gum. Tragacanth. puriss. ʒj.*
Solut. in Aq. Rosar. Rub. ℥j. F. Gela-
tina. M. cum Sacchar. Albiss. ℥ss. Nucis
Moschat. N^o 1. & Copiat Cochlear. se-
mis 8a. quaque Hora.

I proceed now to the Bones, joined for
manifest Motion, more subject to Lu-
xation, and first, of the

Os Maxillars^e. inferior.

THE Jaw Bone hath two Processes at
each Angle; the *Corona* arises broad,
and ends in a Point, playing under the
Processus Zygomaticus, where the Ten-
don of the crotaphite Muscle is inserted
into it.

The other called *Condylus*, (which
makes the Joint,) is shorter, lower, and
inserted into the Sinus of *Os Petrosus*;
both Sinus and Process being covered
with a Cartilage, and between them a
third, to facilitate its side Motion in chew-
ing. Another called *Ligamentum An-*
nulare

mulare, furrounds the Articulation, and the Muscles *Masseter*, *Temporal*, and *Pterygiodes*, help to keep it (by their Contraction) steady.

Any Thing that over-stretcheth the Mouth, whether yawning, gaping or chewing, may put the *Condylus* out of its Socket, into the Cavity of the Cheek.

Signs, are the Jaw thrust forward, making the Teeth more prominent; or if the Dislocation be only of one side, a Distortion like *Spasmus Cynicus*, he can neither swallow, speak, chew, or shut his Chops.

For its *Reposition*, place the Patient steady, put your Thumbs close to the further Maxillaries, press down on those Teeth, extending and raising at the same Time the Chin with your Fingers, without side.

Os Humerus.

THE Shoulder is capable of all Motions, and that they might be easy and extensive, for the Necessities of Labour and Exercise, the Head of the *Humerus* is larger than the Cavity of the *Scapula* wherein it is received (which is likewise most of a ligamentous Substance,

to

to give less hindrance to the Compass of them; but it is for these Reasons, also, more subject to Luxation, than any other Joint, slight Accidents of Blows or Falls, frequently occasioning it.

It ~~was~~^{is} almost ever dislocated downwards rarely forwards, very rarely backward, or upward; the two latter Ways. I believe, has been added rather from the Possibility of the Thing, then Experience and Fact; for it is not easy to conceive what sort of Violence it must be, which can effect them: The Breast takes up the Motion of the Arm, so effectually forwards, that how great or sudden soever the Blow is, the Joint will still yield, and cannot be stretched to a Luxation; and upwards, the Position of the Arm (very unusual in Falls) must be parallel with the Side, and the Blow take the Tip of the Elbow, and even then the Spine or Cervix of the *Scapula* must be fractured to compleat a Luxation.

Signs of Luxation here, are a Cavity in the upper or back Part of the Joint, and the Head of the *Humerus* felt hard and protuberant in the *Axilla*, or forward under the pectoral Muscle; the Elbow (as is the Prolapse) hangs from
the

the Side outward, or a little backward, and as the Motion of the Joint is lost, so it plainly follows, a Patient can reach no higher than that Extent will allow, which is between the Elbow and Tips of the Fingers, *i. e.* only to the Mouth, if the Head be kept upright.

The reverse of these will appear on Reduction, the Joint and Arm recovers a Similitude with the sound one, Pain is abated, and what we may add, as a surer Sign than all, is the knapping Noise that will be heard at its returning into the Socket.

The Intentions of Cure are properly but two, as aforementioned, *Extention* and *Contra-Extention*, answers the first, (*i. e.* Reduction,) and *Deligation* and *Collogation* include the Means of our second, *that is, preserving it so, and preventing Accidents.*

For Extention, there are two Hands, the Heel, a Ladder, or an Ambee in use.

When attempted by the Heel, the Posture is incommodious for Reduction, because the Patient is laid on his Back; however, in order to it, a Compress or linnen Ball must be fitted to the Hollow of the Arm-pit, for the easier sitting of a Girt, which is to come over that

Q

and

and the Shoulder, for Contra-Extention; while an Assistant below fixes his Hands on the Cubit, and his Heel in the Axilla; where, by the Way, it may be noted, that the Elbow Joint interposing, abates the Force of Extention.

The next Method, is, over another's Shoulder, or rather the round Step of a Ladder; here the Compress and Ball being fitted to the *Axilla*, and a sufficient Strength placed before at the Arm, the Weight of the Body (tripped off the Step) is to be the Contra-Extention, a more dangerous Expedient than any; for should the Weight, by such a sudden jirk, bring but a small Part of the *Os Humerus* over the Step of the Ladder, there would be very great hazard of fracturing it; at least, it is a Violence that will pejorate the attendant Symptoms.

The *Ambee* is an Instrument in common Use, and needs no Description, fixes under the Arm, the Length of it, and extends to what Degree you please.

But the Hands, in my Opinion, are preferable to all these, and have been sufficient with me, for reducing a Shoulder, even when the Head of the Bone has been prolapsed three Weeks; by them Extention is more steady and convenient,

venient, because you perceive the Head of the Bone moving, and can more seasonably help to raise it up.

The Method is to bring a Napkin round the Patient's Body, to sit broad on the Hurt-side, the upper Edge of it to come close to the Axilla, and on the opposite Part to be tied very fast, for some Assistant to make the Contra-Extension by. He that extends forward, should be strong, and have his Hands flowered, for the more firm holding.

The Patient is seated on a low Stool, fixed, so that Assistants can come round, without incommoding each other; the Surgeon over looking, claps his Thumbs forcibly on the Cervix of the *Scapula*, and his Fingers underneath in the *Axilla*, without any Linnen or Compress between, to dull the Sense of Feeling, when the Head of the prolapsed Bone is moving.

Thus ready, Extension and Contra-Extension should be begun together, not by jerks, but smooth, steady and strong; and when the Head of the Humerus is found moving, the Surgeon must endeavour with all the Strength he has in his Fingers, to assist its Reposition, ordering him that extends, to favour this Part, by moving the Elbow

downward, towards the Patient's Side, when he is at the full Stretch of it. We may note, that very strong Extention is chiefly of Use in robust Bodies, and where the Bone has been long slipped, (lest the *Cupula* fracture,) for in Children and young moist Habits, less will do; we need only make an ordinary Extention at the Arm, and bow contrary to the Way the Bone prolapsed, the Surgeons Hands (at the same Time) grasping the whole Joint, will be a sufficient Contra-Extention.

Deligation and *Collocation*, comprehend Dressing, Bandage and Scituation. The Dressing, where the Patient is young, and of good Constitution, need only be a Compress large enough to enfold the Joint, dipped in *Oxycrate*, or *Acetum cum Albumine Ovor.* and if older, or an ill cachochymious Habit to deal with, the following Embrocation and Emplaister, will better resist Pain and Influx of Humours.

R. Ol. Lillior Hyperic. a. p. æ. M.
R. Empl. Diaplm, de Minio. a. ʒss. Bol.
Armen. ʒij. Oleum dulce q. s. F. Empl.
extenditur super Alutam.

Or an *Empl. E. Bolo.*

Or that, N^o 31. adding, if Occasion;
Venesection in the contrary Arm.

The

The Bandage, called *Spica*, described in *Mon. L. Clerk*, will be always best for the Shoulder, and next to that the *Star*, (this makes only crosses behind, the other before and behind,) either is usually dipped in Oxycrate or red Wine; and before using, the Hollow of both Arm-pits, filled with Linnen Compresses or Tow, to adapt the Bandage, and prevent galling, and the Circumrotations tort, because, what with the drying of the Rowlers, and Motion of the Breast, in breathing, they soon slacken.

The Scituation of the Limb should be in a large Napkin, thus; bring one Edge of it close under the hurt Joint, carry one Part behind, the other forward, and tie fast on the opposite Side of the Neck; the inferior Selvedge of the Napkin bring up, having inclosed the Cubit, and pin at a suitable Elevation.

N. B. There is one of the Tendons of the *Biceps*, which passes thro' a little Notch or Excavation of this superior Part of the Humerus, that sometimes in quick jirks of the Arm, (Slinging or Batt-playing,) slips its Place, and imitates, in Pain and Imbecillity, a Dislocation; this is easily distinguished by the Protuberance and Cavity being wanted, and

requires no Extention, only an easy Twisting, or Variety of Motion to the Arm, till it Re-places.

Os Femoris.

THIS Joint, made by the Insertion of the Head, or *Epiphysis* of the Thigh Bone, into the *Acetabulum Coxendicis*, is secured ; besides, the Depth of the *Enarthrosis*, by a ligamentous Substance round the Brim of the *Acetabulum*, that makes the Diameter less there, than in the Socket, binding in the Head of the Bone ; which if we consider, together with that Security the *Ligamentum Teres, longum*, and the Muscles add, it will be almost impossible to allow its Dislocation, but that the Accidents taken for it are generally Fractures ; a Mistake I have more than once seen.

I must acknowledge, that in tender infant Years, where Children are weak and ricketty, and the *Epiphysis* as not united, it may be subject to an inward outward, forward or backward, either Distortion or Dislocation, as is evident in some short Limbs that have gone the whole Life-Time unreduced ; but in Adults, the Possibility seems only inwards, and that first, because the *Ligamentum Teres*,

Teres, which ties in the Head of the Bone, arises not from the Middle of the Bottom of the Socket, nor is inserted exactly in the Middle of the Head of the Thigh Bone, but on the Side next the Groin, most favourable for admitting it. *Secondly*, The *Ligamentum longum*, arising from the Neck of the Bone, and being inserted in the nearest Process of the *Coxendix*, suffers not the Stretch this Way. *Thirdly*, The Ligamentous Substance, abovementioned, is not so deep inward, as at any other Part of the Brim; and *lastly*, The Perforation of the *Os Pubis*, is convenient for the Reception of the Head of the Thigh Bone: Yet all these concurring, with any Violence, the Bone sooner Fractures than Dislocates; for as it must be perfect, (or the Head of the Bone would return back again presently,) so that cannot well be, without a Rupture of the *Ligamentum Teres*, an Accident scarce allowable, but, if it can happen, exposes to every sort of Luxation as well as the inward.

Signs of an inward Luxation, are a Tumor and Protuberance on the Hole of the *Os Pubis*, and Cavity on the opposite Side; the Leg appears longer than the other, the Knee and Foot turned outward,

and the Motions the Joint serves to, very imperfect, or lost. In the exterior Prolapse, the Leg appears shorter, the Leg and Foot turned inward, and the Heel to the out-side, requiring a stronger Extention to reduce, as being from a deeper Cavity, and unbending the Contraction of some of the strongest Muscles of the Body.

Prognostick.

AS the Violence which luxates the Hip, must prodigiously exceed that of any other, and that the *Ligatum Teres* is broke, so the Pain and influx of Humours (we may believe) will be proportionably aggested, and Inflammation, Apöstemation, and perpetual Lameness, a more necessary Consequence.

Reduction.

IN the inward Luxation, the Muscles are already on the Stretch, and therefore requires no great Extention; there seems only to be wanting some strong Person, between whose Legs the Patient may sit, and with a strong Grasp about his Body, hinder his receding or giving Way, which is the Contra-Extention: While the Surgeon with both
Hands

Hands above the Knee, extends forward, (an Assistant bearing the Foot up) and at the same Time carries it towards the sound Thigh and upwards. For reducing the outward Luxation, more is wanting; a Pin should be fixed, says Mr. *Wiseman*, on a Table, to come down between his Thighs, the Patient on his Belly; a Strap is to pass up the Crutch, with a Compress upon, to defend from any Uneasiness, and forward (if the Hands are not sufficient) we may extend also with Straps, thrusting the Thigh backward and outward at the same Time.

After Reduction, remains Dressing and Scituation; and herein I should think a Compress dipped in Oxycrate or red Wine, large enough to infold the whole Joint, and crossing upon the Hip, would be better then Emplaisters which obstruct the Perspiration of the Part, and by that Means raise a Ferment in the Humours, more rationally supposed aggregated, where the Hurt and Extention to restore have been both so very great. The Rowler should be long and double, and, like the Compress, cross over the affected Hip, and so continue with crosses and edgings, till finished.

A pro-

A proper Scituation is resting the Hip on a soft Pillow, with the Knee and Foot a little raised, and continued for three Weeks, in the quietest and easiest Position. Venesection, Clysters, and Dieting, are to contribute likewise their Share in preventing Fever and other Disturbances.

Os Cubiti.

THIS Juncture is a *Ginglymus*: The *Humerus* ends with a double Protuberance, which necessarily makes a Channel between them; on each Side of which there is also a little semicircular Rising: On the Fore-side of these Protuberances, there is a small, and on the Back-side a large *Sinus*. The *Ulna*, which is the inside Bone, and makes the Joint, has a Cavity suitable to the inner Protuberance of the lower End of the *Humerus*, and it has two Processes likewise shooting from this Cavity, one before, and one behind; the foremost is small and short, running into the *Sinus*, on the Fore-side of the Protuberances of the *Humerus* on Flexion; and the hindmost called *Olecranon*, (bigger and longer than the former,) runs into the hind *Sinus* on Extention, staying the
Arm

Arm at a strait Line. The *Radius* has here a broad Head, part of whose Circumference, is received into a small lateral *Sinus* of the *Ulna*, bound in by a broad Ligament; and by Vertue of this, the Actions of Pronation and Supination are performed. The Top of this broad Head has an Excavation, for receiving the outer Protuberance of the *Humerus*, and secured to it by the circular Ligament involving the Joint, and by several Muscles.

It is very difficult to conceive how a perfect Luxtion of this Joint can happen, semi-luxated or distorted, it may be four Ways, inward, outward, and side Ways; tho' if we consider how it is secured from the latter, by the make and strong Ligaments on its Sides, and how improbable it is for any Flexion to thrust it out backward; we may be apt to imagine it is more frequently, than truly represented so, to increase the Timidity of a Patient, and recommend the Skill of the Artist.

The most likely Way of Luxation, is inwards, and yet high Falls, wherein the Fore-Arm catches, or strikes on any hard Body, rather makes a Fracture than any Distortion at the Joint, unless,
in

in such Falls, the Person endeavours to save himself with the Palm of his Hand, for then the Strain lays entirely at the Elbow, (the Wrist yielding, and the Pressure along the Cubit, being *Secundum Longitudinem*,) so that if of Necessity, something must give Way, it will probably be here; but then it cannot recede far without fracturing the *Olecranon*, a deplorable Case, and must produce incurable Lameness.

Signs.

SIGNS of a distorted Elbow, are a Protuberance on which Side soever the Head of the Bone thrusts out, a Cavity whence it has receded, and an uncommon Pain from a Distraction of the Tendons: The Flexors and Extensors of the Hands and Fingers, taking their Origine from the inner and outer Protuberances of the lower End of the *Os Humerus*.

To reduce, is to extend and force the Head of the Bone contrary to the Way it prolapsed.

The Dressing and Position should be contrived Emollient and Anodyne. Embrocate with *Ol. Hyper. Rosar. a. p. æ.* and dip a double Flannel, snipped (from each

each End towards the Middle) into the same Mixture, warm and apply ; it is, I conceive, better than a Plaister, as being more soft and anodyne, and com-
pliable to the Shape and Position we are to put it in. The Rowler should be single ; begin with one turn on the lower End of the *Os Humerus*, slope it down on the bending of the Arm, and make a Turn on the upper End of the Cubit ; re-ascending on the bending of the Arm so as to make a Cross there, continue so to do with Edgings till the whole be covered, (except the Tip of the Elbow) and finish at the upper Part of the Arm : you must give the Cubit a little Flexure before Rowling, and the Elbow not being covered, will yield enough to sling at a proper Elevation.

Os Cruris.

THIS Joint is a *Ginglymus* also, (the strongest of Articulations.) The lower End of the *Os Femoris* has a double Pro-
tuberance divided by a Cavity, and the *Tibia* or *Focile majus* (on which the Juncture is made) has a double *Sinus* at its upper End, with a Production between, for the mutual Reception and In-
sertion of one another. The *Cartilago lunata*

lunata runs between the Extremities of the two Bones, and facilitates a Side Motion. The *Fibula* receives at this End, the external Knob of the *Tibia*, but comes not up to the Knee, to make any Part of the Joint.

The *Patella* tyed down on its forepart by Muscles passing to and beyond it; and by the Tendons of the Extensors of the Leg add a great Strength to the Joint, and behind the Hamstrings (Tendons of the Flexors.) All which together, renders it (unless where great Enervations and Discontraction of the Tendons has preceded) difficult of Luxation Sideways or Backwards, but Forwards seems impossible; not only on Account of the Pan, but because *Genuflexion* can never be carried far enough.

Signs, are what have been remarked in common with others, unless that the Tumor and Cavity may be more apparent; and Reduction is extending and moving the Head of the Bone, contrary to the Way it went out. Suppose it were Backwards, you are to have an Assistant for the *Contra-extension* above the Knee, and your self with one Hand on the Calf, and the other above the Ankle, are to extend forwards, giving it at
the

the same time a quick Flexion towards the Buttock, and it will knapp in; a certain concomitant Sign will also be the Cavity that was under the Pan, being filled up again. The Dressing should be an Embrocation of *Ol. Rosar. Hiper. M.* a corroborative Emplaister on Kid Leather, a Compress in the Ham, a Flannel over that, and then a double Rowler; begin with the Rowler just above the Knee, descend with a Cross under the Ham, bring them up below the *Rotula*, and make a Cross on the Leg. Continue thus to do with Edgings, till the Knee is covered and Rowler finished. The Compress included here, not only guards against the Tendency of a Pro-lapse, but defends the Tendons behind from Cold and Uneasiness, which too aptly contract them in these, Fractures, and the like Misfortunes, that necessitate a long and inactive Confinement. When such Contraction does happen, I must recommend, besides warm emollient Embrocations and Fomenting, a Working of the Limb backwards and forwards on the Joint; these Chords have some Resemblance to those without us, and malax and unbend with Warmth, Moisture and Motion. I knew such a Con-

traction

traction of the Flexors, after a long Confinement, for a Fracture of the Leg, and when Oyntments and Fomentations had been used to no Purpose, unbent and strait'ned after about a quarter of an Hours such Exercise with the Limb.

Offa Carpi.

THE Radius (on which the Articulation of the Wrist is made) is largest at the lower End, and has two *Sinus*'s for receiving the first Rank of the Bones of the Wrist, (the fourth Bone of this Rank lays upon the third, and seems easiest of receding from its Station.) The second Rank lay even, answering to those of the *Matacarpus*, which at this End have each a *Sinus* to receive them. The *Ulna* is small here, received into a like *Sinus* of the *Radius*, and makes also a short Process even with the outside of the Little-finger ; this Process gives Rise to Ligaments that ties it to the Bones of the Wrist, and serves to keep them in their Place. Lastly, they are strongly tied to one another by Ligaments from the *Radius*, and by the annulary one.

From this Description of the Wrist may be inferr'd, First, that being composed

posed of several single Bones, they may recede from one another, and that chiefly at joyning the two Ranks, or in that fourth Bone of the first Rank, not seemingly so well secured as its Fellows. Secondly, the first Rank may slip, or distort from the *Radius*, or the second Rank out of the *Sinus*'s of the *Metacarpus*, either, according to the partial Weakness, and as the Strain or Pressure bears on a particular Point, or the whole Joint. Thirdly, from the manner of their joining and the Motions of the Wrist, we may conclude, any other way of Dislocation than forward or backward, improbable, excepting that fourth Bone of the first Rank, which I have seen continue prominent nigh the Process of the *Ulna*, with little Trouble.

As the Signs are a Prominency one way, and a proportionable Vacuity on the other, so consequently Reduction is the Recovery of its Shape; and tho' done easily by Extensions (their Edges holding still a Part with their Fellows) yet is it subject in its Consequence to great Pain and Tumor.

Pain is a necessary Result from the greater Sensibility of a Number of Tendons here, but then the Tumor is rather an Inflation; now according to the Mechanical,

chanical accounting for the Operation of Muscles, Inflation should be in the Bodies of them, and none in the Tendons, yet so it comes to pass, that fleshy muscular Joints have most Danger of inflaming and apostemating from an Accumulation of Blood, and tendinous Joints, such as the Wrist, more evidently to a Rarefaction of Blood and Spirits, such are these large soft inflated Tumors; the constant Attendant of Sprains and Distortions here.

The Doctrine I would draw from this, is only in respect to Rowling. That in Fleshy Articulations, the Tumor, when inflamed, being plainly an Accumulation of Blood, and no supposed Expansion or Elasticity of Air, strict Bandage must obstruct the Circulation and increase the Accident. On the contrary in inflated Tumors (as all these may be reckon'd which carry the natural Colour of the Cuticle in Sprains) streight Bandage is most advantageously used: We need not neglect the Topicks afore-prescribed, but the Cold-Bath, Rest, and this, are the most effectual Means of Recovery.

Ossa Malleoli.

THE Ankle Joint is made between the two *Focils*, and the first Bone of the *Tarsus*

sis (called *Astragalus*) by a *Ginglymus*; for the *Tibia* at this End has a Cavity divided by a small Protuberance, and the convex Head of the *Astragalus* (inserted into this Cavity) is divided by a *Sinus* for the Reception of that Protuberance, so that the *Fibula* makes only a Part of the Joint, as it descends in a large Process on the outside of the *Astragalus*, forming the outward, as the Process of the *Tibia* does the inward Ankle.

There are six Bones more go to constitute the *Tarsus*. The *Os Calcis* is the largest, tyed by a *Ginglymus* to the under side of the *Os Astragali* or *Tali*, which on the hinder Part of its under Side has a *Sinus*, and on the fore Part of the same under Side, a Protuberance, for receiving and being received, by an answerable Convexity and *Sinus*, in the upper Part of the *Os Calcis*; and from this Juncture is formed a Cavity, containing an Oily Substance for Lubricating the Joint. In the hind Protuberance of it is inserted the *Tendo Achilleis*, and before, it has a Cavity receiving Part of *Os Cubiforme*.

The *Os Naviculare* is situated before the *Os Tali*, receiving its Convex Head, and forward its divided into three Heads itself, and inserted into the *Sinus's* of the

Ossa Cuneiformia, or Wedge-like Bones; These again are joined to the three inner Bones of the *Metatarsus*: They are in Rank, and the *Os Cubiforme* with them; the latter joined in like manner to the two outer Bones of the *Metatarsus* before, and the *Os Calcis* behind.

The Conformation of this Joint considered, how fast bound with Membranes, Ligaments and Tendons, makes it very difficult of Luxation (such a Luxation, as that any two Bones will ride on one another.) If the *Os Tali* were entirely to slip out of the Cavity of the *Tibia*, how miserable must be the Distortion, and how torn the Ligaments; nor could it well be, without displacing or disturbing, at least its Juncture with the *Os Calcis*, or *Naviculare*, and that perhaps might extend further to the Bones they are contiguous to.

Again, the *Os Calcis*, *Naviculare*, and *Ossa Cuneiformia*, seem not capable of being disjoined at one End, without making a Separation at the same time, from the Bone they are contiguous with, at the other: As for Instance, should the *Os Calcis* depart from the *Astragalus*, it must move the *Cubiforme*, or from it. If the *Naviculare* recede from the *Astragalus*, there must likewise be some Recession at
its

its Juncture with the *Cuneiformia*. And they again by any Accident suffering a Distortion from the *Naviculare*, must in some Measure bear the Effect to the Bones of the *Metatarsus*, to which they are joined, and this because they are short and so closely linked and united; whence the Ankle, as it approaches towards a perfect Luxation, suffers insupportable Pain, a long and tedious Weakness, and sometimes irrecoverable Lameness.

The Dislocation is imperfect here, may be imagined from the slight Accidents commonly said to induce it, such as slipping on an uneven Surface, sudden Stumbles and Falls; and this Recession of the *Os Tali* from the *Focils*, or the *Os Calcis* from that (both gynglymoid Junctures) may be four Ways, *Outward, Inward, Backward and Forward*.

Signs. To judge of it, we must attend to the Nature of the Hurt, how received, &c. The Pain, Tumor and Deformity of the Joint; if inward, the Foot will be found turned outward, in Proportion to the Distortion; and if outward, the Foot turned inward, &c. But as these Signs are equally the Concomitants of Sprains, and that it is not easy to perceive any small Distortion of the Bone thro' a large

Tumor, or a peculiar Conformity. I say, in regard to this, it is not impolitick to recommend Extention at all times; a Patient confines himself with more Satisfaction, and it keeps him off from Pretenders, who never fail on such Omission, to represent the Case in bad Colours, the better to recommend themselves.

Extention. Extention should be made with one Hand on the *Metatarsus*, the other under the Heel, while an Assistant holds the Leg the same time: Having collected from the aforegoing Signs, how the Head of the *Astragalus* lays distorted, wring the Foot the contrary Way; or when the Recession is small or but suspected, press gently with your Fingers about the Joint (when at its Extention) to restore the Deformity.

Cure. The Cure consists in the present and continued Use of the Cold Bath; an Embrocation of *Ol. Rosar. Hiper. a. p. a.* a Corroborative *Emplr. ex Minio & Diapl.* a Rowler; and what is the properest Ingredient towards Amendment, resting on a soft Pillow. As it recovers, recommend a sort of half Boot, coming up as a Part of the Shoe to lace on, and steady the Joint.

Os Pollicis & Offa Digitorum.

THE Thumb is joined to the Wrist, as the Bones of the *Metacarpus* are, that having a *Sinus* at its upper End for the Reception of the other, and the second Bone of the Thumb is joined to the first, as the first (or longest) Phalanx of the Finger, is to the Bone of the *Metacarpus*, *i. e.* the upper End has a *Sinus* for the Reception of the round Extremity of the other, therefore may be dislocated any way; and has these Signs.

Forward, the Flexors will be stretched, Backward the Extensors, and the Disparity is easily seen and felt.

Extention reduces them, and they require (as greater Dislocations do) an Embrocation and Emplaster, suitable Rowling and Repose.

Sprains.

In Luxations, the Joints are always sprained (whence the Symptoms of Pain, Tumor, &c.) and oftentimes without it.

According to the Violence of the Fall or Hurt that occasion'd the Sprain, the Tendons, become more or less distended, and that lattitudinally or longitudinally, which, allowing for the Age of the Patient,

is the only Cause why the Weakness or Lameness of that Joint, should be of a short or a long Continuance; because, as Nature has given to all Parts of the Body a Peculiarity of Sense, Texture and Figure, which will best conduce to the Use or Action its for; and again, that the Parts are more or less solid, as may answer best those Ends and Necessities; so it necessarily comes to pass, that the more sensible any Part is on which a Hurt happens, the more acute and sharp must be the Pain; and the more solid it is, the longer Time it must take for Restitution. The Tendons are Parts of the acutest Sense, and of a mean Solidity, having a peculiar Texture on which the Perfection of Action depends; if they grow dry and approach towards Rigidity, by Defect of Nourishment and Infirmities of Age, we find they proportionably lose of their Sense, and the Limb or Limbs become imperfect and maimed in their Motions; so on the other Side, if Strains descend them from their natural Make and Manner of Compaction, they will, as I observed before, on Account of their Solidity, require a longer Time for Recovery, which would not sometimes be protracted for so many Months (often a longer Time than a fractured Bone

is uniting) if the Quickness of their Sense did not stimulate an Afflux of the Nervous Juice and Humours to the Part, which promotes those additional Accidents that obstructs it, nor are they at any time irrecoverable, but from a Detention and fixing of such Matter as should have been excerned (if possible) and by continuing impedes the Access of Spirits, dulls the Sense, and consequently spoils the Use of the Part.

If a Strain be therefore as thus described, why then, at its first being received, we should endeavour to restore the Nerves and Tendons to a due Tensifity again; and this, in my Opinion, can by nothing be more effectually done, than by the immediate Use of the Cold Bath, a Means that will return them their proper Springyness and Stiffness (if continued) and restore Strength, sooner than all other in a much longer time could do.

Corroboratives, whether distinguish'd by Emplaisters, Rowling, or Bracing, may bring up the Rear, and have their Use:

Prescripta aliquot in usum Classis.

I.

Elect. Scorbaticum. R. Elect. Lenitiv. ʒj. Crem Tartar ʒiss. Spt. Cochlear qss. F. Elect. De quo sumat Bolum omni mane & Vespere pro uno Mense.

Magnum conducit (labore Corporis) ad Curationem hujus Morbi.

II.

Elect. Dysenteric. R. Conf. Rosar. rub. ʒiv. Diascord. ʒj. Bol Armen Pul Sang. Dracon nucis Moschat Pul a. ʒj. Cinnam. bene Pulverisat ʒij. Syr. E. Meconio qss. F. Electuarium.

III.

Elect. Febrifug. R. Pul. Cortic. Peru ʒij. Sal Absynth ʒij. Sal. Tartar ʒj. cum Syr. Caryophill F. Elect.

IV.

Elect. Pforic. R. Æthiops Mineral ʒj. Antim. Diaphor. ʒij. Conf. Cynosbat ʒiss. sumat quantitat. nucis Majoris omni mane & Vespere.

V.

Conf. Alexiphar. R. Pul. e chel Cancror. Simpl. ℥iſ. Ther Andromach Conf. Lujula a. ℥ij. Syr. Limon. qſ. ff. confect. in vafe bono Obturato ſervanda.

VI.

Mixtur. Anti-Emetic. R. Aq. Menth. S. ℥ij. Vin Alb. cum Menth impregnat. ℥iſ. Sal Absynth ꝑj. Syr. Limon de Mecon. a. ℥iiij. F. Hauſt.

VII.

Mixtur. Febrifug. R. Aq. Hord. ℥iiij. Aq. Epidem. ℥vj. Sal. Absynth. ꝑj. Spt. Vitriol g. xx. ſumend. in Lecto, horam unam ante Expectatum Paroxyſmi acceſſum.

VIII.

Bolus Febrifug. R. Cort. Peruvian. Subtiliſ: Pulverifat. ℥j. Ther Androm. ℥j. Spt. ſal. Armoniac. qſ. F. Bolos N^o 2 quorum unum ſumend. Horas duas ante paroxyſmum in Lecto, ſudorem provocando: initio Paroxyſmi Alterum, continuand. ad duas vices Remedium Efficaciſſimum merito Habeatur.

IX.

Juláp. Analeptic. R. Aq. Hord. lbj. Aq. Epidemic. Ther. a. ℥iiſ. Syr. Caryoph. ℥ij. M. F. Juláp. Concedi poteſt ad Cochlear iiij. quartis vel ſextis Horis.

X. In-

X. *Infus Pectoralis.* R. *Suc. Liquir* ℥j.
Sal Tartar zij. *Aq. Hord.* ℔ij. *Infund.*
simul in balneo Mariae.

XI.

Haust. Paregoric. R. *Aq. Font.* ℥ij.
Aq. Ther. ℥ss. *Syr. de Mecon.* zij. *L. Li-*
quid. g. x. *M.*

XII.

Haust. Traumatic. R. *Cerevis. Prussia*
 ℥iij. *Syr. Symphiti Croci a.* ℥ss. *Sperm.*
Cati zij. *M.*

R. *Aq. Hord.* ℥iij. *Sperm. Cati* zij. *Aq.*
Ther. ℥ss. *M.*

XIII.

Pul. Traumatic. R. *Terra Sigillat.*
Lap Hibern. Sang. *Dracon. Mummia.*
Sperm Cati a. zij. *Pul. Rhabarb.* ℥ss. *M.*
divid. in Chartulas. iij. *quarum unam*
sumend. 6a quaq; Hora in haust poscha.
vel Cerevisia seu informa boli cum Ther.
Venet.

XIV.

Decoct. Amarum. R. *Sem. Cardui.*
Rad Gentian. Incis. enula Campan. a. zij.
summitat Centaur minor pj. *Flor. Cha-*
mamel. qss. *Coquant. in Aq. Font.* ℔iv.
ad ℔iij.

XV. De-

XV.

Decoct. Solutiv. Commun. R. Rheiz.
Elect. Incis. ℥ss. Fol. sennæ ℥iij. Sem. Co-
riand. contus. Fenic. dulcis a. ℥ss. Crem
Tartar ℥vj. coquant. parum simul in Aq.
Font. ℥iv. Colatura Edulcoretur pro re-
nata Syr, e Spin.

XVI.

Suppositor Eccoprotic. R. Ful Aloes
Hieræ Picræ vel alumin qss. Albuminis
ovor M. ad aptam Consistentiam.

XVII.

Pil Panchymag. R. Mer. Dul. ℥ij. Pil
ex duobus ℥iij. Rudii rez. Jalap. Crem
Tartar a. ℥ij. Ol. Anisi ℥is. cum qss. Syr.
E. Spin F. Massa Pil. Dos. ℥j. ad ℥ss.

XVIII.

Enema Commun. R. Aq. Font. ℥x.
Mell Opt. ℥j. Sal Commun. ℥ss. Miscean-
tur simul Bene ignis Calore.

R. Aq. Marin. ℥x. Ol. Chamæmel ℥j.
Sacchar Nig. ℥ij. M.

XIX.

Enema Terebinth. R. Urin. human.
recent. ℥xij. Terebinth. venet (cum vitel
ovor M.) ℥vj.

XX.

Collyrium Commun. R. Aq. Font. ℥iv.
Vitriol Alb. gr. xij.

R. Aq. Ros. ℥iij. Troch alb. Rhas. ℥j.

XXI.

XXI.

Gargarisma Commun. R. Aq. Font. ℥ss. Mell Rosar. ℥i. Sp. Vitriol g. xx. M.

XXII.

Ol. Epulotic. R. Vitriol Alb. ℥ij. Vitriol Roman. Alumin. a. ℥j. Solvuntur & coquantur in Oleo & Aq. Font. a. ℥ss. ad Consumption. Ultimi.

XXIII.

Ung. Scorbutic. R. Ung. Martiat. Dialthæ a. ℥viiij. Ol. Hyperic. Terebinth. a. ℥j. M. F. Liniment.

XXIV.

Ung. Cata-Pforas. R. U. Popul. Axung. Porcin. a. ℥bj. Flos Sulphur ℥ss. Mer Sublimat ℥ss. Ol. Tereb qss. F. Ung. Molle.

XXV.

Ung. Digestiv. R. Linim. Arcei, U. Basilic. a. ℥bj. Ol. Tereb. ℥ij. Hyperic. Lini. a. ℥iv.

XXVI.

R. U. Basilic. Liniment. a. ℥iv. Ol. Hyperic. ℥ij.

XXVII.

Ung. Desiccativ. R. U. Desiccac rub Diapomphol. Basilic. a. ℥j. M.

XXVIII.

XXVIII.

Ung. Detergent. R. U. Digestiv. Terebintb. Venet. a. p. a. M.

XXIX.

Ung. Pleuritic. R. U. Dialthæ Ol. Tereb. a. ℥j. Camphor. ℥ss. M. Spirituosa Unctuosus admista multo Potentius mēderi Doloribus quam per se sola Usurpata.

XXX.

Restrictiva Maxim. R. Albumin. Ovor N^o 2. Acetum vini. ℥iij. Pul. Restrings qf.

XXXI.

Ceratum Commun. R. Empl. de Minio Paracels. a. p. a.

XXXII.

Empl. Defensativ. R. Empl. Diapalm. ℥iv. Ol. Rosar ℥ss. Pul Boli. ℥j. M. & extendē super Alutam.

XXXIII.

Empl. Anodynum. R. Empl. Saponis ℥viiij. Oxycroc. Picis Burgund. ℥ij. Opii solut. ℥ij. liquefiant omnia simul in Massam.

XXXIV.

Cataplasma Resolvens. R. Mica Panis Farin. Fabar. a. p. a. coquantur in Aqua

*Aqua Font. q̄s. ad Consistentiam aptam
deinde Ol. adde Rosar. Cham. a. Parum.*

*Pro Fotu. R. Ex quibuscumque Herbis
sequent. Absynth. Origan. Thym Centaur.
Betonie. Salvia, Hyperic. Menth Rosma-
rin. Lavend. Abrotan. Sambuc. M̄ iv.*

*Ex hisce floribus Balaustior. Rosar.
rub. Cham. Melilot. p. iv. ex seminibus
4. calid. major p. ij. coquantur omnia
in Lixivio Cong. iij. colatur. adde Spt.
Vini q̄s.*

*Usurpetur cum Stuphis Laneis calidis-
sime intinctis & Expressis si Spirituosus
requiritur adjice Spt. Sal Ammoniac. ℥j.
Camphor. ℥ss.*

F I N I S.





Lues Venerea.

THOSE who fetch the Original of this Distemper no farther back than the Siege of *Naples* by the *French*, 1494, thence calling it the *French*, and sometimes the *Neapolitan* Disease, must only mean that it received its present Name there, that it became more common, or that luckily about that Time some Remedy was found better adapted to its Cure than any before known: For no doubt it reaches in Antiquity the First Ages; it being irrational either to suppose a World drowned for their Sins, Strangers to the Vice that contracts it, or that their Wickedness any more than ours deserved Exemption. No; Providence, we may safely

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be-

believe, stamped an immediate Punishment on this, as on all other Intemperance and Sin, *ab Origine*, that the Pains and Sufferings succeeding a vicious Course of Life, might, if nothing else would, restrain us to Vertue, and be both a natural and moral Good to us. We find *Moses* describing a Leprosy, *Levit.* 13 and 14, that corresponds with the Symptoms, and seems to have been a Species of this Distemper; so does the Difficulty of the Cure, *Deut.* 28. where it is said, *The botch and scab of Egypt of which thou canst not be healed*: And those many Laws found here relating to a Leprosy, would suffer a greater Disappointment than seems intended, as well from the Obstinacy as infrequency of the Distemper, if applied only to what we now strictly understand by that Term: The same may be said of many Ancient Physical Authors, who with the like or greater Plainness have described the Symptoms, tho' not under the modern Titles.

In the prosecution of this Subject I propose to set forth the Nature and Manner of Infection in all those Symptoms commonly understood by a Clap, *viz.* the *Gonorrhœa*, *Chancre*, *Phymosis*, &c. and then exhibit a Method of Cure; mentioning the

the Symptoms occasionally under either Head, as they serve to enlighten each other: And *First* of the *Gonorrhœa*.

The *Gonorrhœa* is benign or malignant: The first sort is an Emission of Humour from the *Glandulæ prostaticæ*, a Weakness only, and commonly proceeding from great Strains, and where the natural Strength has been too far exerted in any sort, whether by Labour or Venereal Pleasures; it has its Symptoms as well as Process of Cure very different from the malignant, which at present I shall make the only Subject of my Enquiry, and that under two Heads.

1. By shewing how either Sex becomes infected. And,

2. A Cure for that Infection.

And *1st*. Of the Woman: Her I look on must be primarily and originally Infected, that is *sine amplexu infecto*, to introduce the being of this Distemper in the World: For let a Man correspond with what Variety he pleases (provided they are sound) he receives no Malignancy, which could it be so with her, I cannot see why we ever should thus unhappily have had its Knowledge; but Experience too fatally contradicting this, is a Conviction, that Coition with Numbers has

first of all, and probably does still, at some times effect the same, as at other times Communication with an infected Person; and this I shall endeavour to make out in a few Words.

Such who say the promiscuous Mixture of different Sperms excites a Ferment, which in a little Time throws off such an Exspumation as we call a Running, do agree that Numbers (tho' sound) carry Infection, we only differ in the Manner they accomplish it, which I rather suppose to be thus: When the Venereal Appetite is jaded with the too intemperate Efforts of several Men, it will be next to impossible for those Parts to suffer the continued Frictions made there (as common Women do) without excoriating and fretting the Membranes of the Vagina; and such Excoriations, how small soever in the beginning, meeting with an ill Habit of Body, together with the natural Incalescence and Moisture of the Parts, will soon degenerate to an Ulcer; which Ulcer will be the Distemper: And perhaps herein lies the Difference between a *Fluor Albus* and *Gonorrhœa*, (when thus contracted) that the one is a Weakness from too frequent Irritations made there, and the other besides that extrin-

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cal Accident, has an ill Habit of Body joined, that induces Intemperies.

What I think gives Credit to this Opinion is the Customs of the Jewish, Mahometan, and many other Countries, who allow a Plurality of Wives, and an unlimited Number of Concubines, restraining their Sex at the same time to one: For this, tho' an inferiour Motive of the Law, argues the World to have previously experienced such a Liberty in them more destructive of Health and a sound Constitution than in us. Among other Creatures there is an Instinct answering such a Purpose of the Law whereby the Females are *provoked only at certain Seasons to Propagation, and abstain after Conception; Nature intimating by it a Lesson of Chastity to the Fair; that it should be their peculiar as well as most ornamental Vertue.*

Against it, I can form to my self only two Objections: First, That it may be alleged the Activity of some Men this Way, might prejudice a weak Woman the same as a Number: And Secondly, it may be asked how an Ulcer, *in Vagina*, can acquire Malignity enough to communicate Infection on Coition, when the greatest Degree of Virulency

cy in another Ulcer produces no such Effect?

But, to these it may be answered, That the Strength and Activity of any two in Health will seldom be found so disproportionate as to become hurtful, when it is; the Disorder ensuing can be no more than a *Fluor Albus*, or a Weakness without Malignity. And as to the other; why an Ulcer here should sooner impart its Mischief than any other? Is, that the Parts concerned are in all Respects more commodious for giving and receiving any Injury, and that the Heat raised and excited by Lust gives a Force and Activity to the Salts generated under the Corruption; whereas any other Ulcer, tho' never so virulent, cannot emit Effluvia's in such Force or Numbers, nor to Parts so susceptible of their Reception; but if they had those Advantages, it is likely their Effects would be equal, many ill Consequences following from an Ulcer with Virulency in any Part incautiously dry'd up.

That Lust also is a very necessary Adjunct for communicating Infection, and giving Force to those virulent Miasms that are as it were darted by it from her, we judge by that particular Power and In-

Influence, Imagination is found to have in the Commotion of these Parts: In this Case it is so much, that many infected Women avoid hurting their Husbands principally on the Moderation and Coolness of their Enjoyments, whereas a Stranger inciting more intense and vigorous Desires as seldom escapes. The same may be said where two or three, with weaker or stronger Inclinations, lie with one and the same infected Woman, that one perhaps shall be catch'd, and the others come off unhurt, chiefly as the Fancy on either side is brisk and lively, inclin'd or disinclin'd.

Venereal Contact seems of such Necessity for communicating Infection, that with me it is a very unlikely thing for Venereal Matter ever to do it without, those who have asserted the contrary of this have done it in such improbable Instances, which whoever can assent to, will be very unreasonable if they deny their Acquiescence in what I have advanced of Numbers. For Instance:

The *Practical Scheme* (Page 4.) says, It is not always necessary a Woman be clapp'd to give it a Man, but that he may take off all the virulent Matter left in the Passage by a preceding Gallant,
and

and she remain perfectly well; or that she may give it him by only taking the corrupted Matter from her Body in her Hand and wetting his Privities.

And others relate its highest Degeneracy, or a Pox, to be Contagious by wearing the Clothes, Lying; or Cohabiting with an infected Person; especially if we suppose it of that Stage of the Distemper wherein the Body becomes over-spread with Cutaneous Eruptions and Blotches.

There are but Two Ways in this latter Case (for the former I have no Notion of) whereby Contagion can be supposed to pass, and that is by their throwing off a greater Quantity of noxious and virulent Effluvia, able to contaminate where they reach, or else, (like what is related in the Philosophical Transactions concerning Contagion in the Itch) *Animalcule*, are bred in those Globules, dispersed about the Skin, which making their Way through, shift from Place to Place, and so carry Infection, they living (says the Relation) two or three Days when from the Body.

But how well these *Assignata* may resolve other contagious Distempers, they will here be found but light in the Balance,

lance, Fact baffles Philosophy, and if all those who have suffered this Way are like what have fallen to my Share, there is not one who could stand by any other Pretence than Coition: Whence we ought to account the Distemper a Mark of Divine Displeasure, and a present bodily Correction for our Sin, that the Sense of our own Interest, might work on us, and bring us back to Temperance and Vertue.

How a Man becomes infected.

WOMEN we have adjudged sometimes to become infected by the Admission of Numbers, tho' sound and healthful; but a Man cannot by the same Means, because among other Reasons there is this invincible one, That Nature is not able to support the Repetitions of those Acts to such a Multiplicity, or in such Measure as with her who is passive; but could that be, I believe also he might so contract it: Insatiable and impotent Efforts, or too painful Enjoyments through the Straitness of the *Vagina*, frequently discovers something like this, in what we call *simple Gonorrhea's*

rhæa's and *Christallins*, which perhaps Time and an ill Habit would change, and make to become virulent, did not Pain or the Debility of Nature prevent a further Use of the Cause that first produced them, and hinder our Actions from keeping Pace with the Viciousness of our Wills and Inclinations. For this Reason therefore Venereal Symptoms thus contracted, never settle or terminate in a Pox; and I am apt to think all Malignity that does so to him, or is contagious, *Must always be from an infected Person, and always by Coition*: For a clearer Understanding of which, and *the Manner of Communication*, I shall Cite Two or Three Celebrated Opinions about it, and then subscribe my own.

Dr. Keil says, *It's Conveyance is by the Elasticity of the Air, thrusting the Morbifick Matter into the Excretory Ducts of the Prostate, which are empty on Coition; and that a simple Gonorrhæa is nothing, but a Corrosion of the Spongy Borders of those Vessels terminating in the Urethra.*

Some think, *a Gonorrhæa to be the Effect of a Fermentation made between the Infectious Liquor, and that of the Prostata, and so without Corrosion an Efflux thrown off like Yeast from Beer.*

Lastly,

Lastly, Dr. Cockburn supposes a *Gonorrhæa* to be the *increase* of that *Liquor* that is discharged by the *Excretory Glands* of the *Urethra*, and done by the *Venereal Stimulus*, in the same manner as *Cantharides* apply'd would do; the *Quantity* of *Matter* discharg'd being in proportion to the *Stimulating Force* they are affected with: And this *Stimulus* (he says) *increasing its Acrimony*, does in *Process of time*, make *Ulcers* in the *Urethra*. This he farther opposes to Dr. Keil's Opinion, by saying, the *Urethra* will admit very little, and that there is no *Muscle*, *Membrane*, or *Machine* alleged to help it forward.

But these Opinions, besides their Opposition to one another, are deficient in carrying their Aim singly to a *Gonorrhæa*, without any Attempt at the Cause of a *Chancre*, *Chordee*, or *Phymosis*, which Men often become infected with, without a *Gonorrhæa*: I shall therefore begin my Enquiry here, being assured that they at least want another and different Explication, which perhaps when found, will facilitate also our Search in a *Gonorrhæa*; and if I am right in my Conjecture, They arise from the *Strength*, *Activity*, and *Solidity* of the *Salts* hid with the *Corruption*, which being dispersed

ſperſed about the *Vagina*, are volatiliz'd and made fitter for Communication by the Heat of Luſt, and received by the enlarged Pores of the *Penis*, where, by their Pointedneſs, they ſhortly effect an Eroſion.

The manner of this Imbibing or Suction on the Man's ſide, is not abſurdly accounted for by the general Relaxation that attends all ſenſual Pleaſures, of which Coition is perhaps the greateſt: Now, as it moſt exquisitely affects us, the Parts are relaxed and made more eaſily ſuſceptible of any Venom to be tranſmitted, and that again from her becomes enabled to inſinuate and eſcape through the Pores by the Pungency of their Salts, and Power they are darted with; and if the Degree of Relaxation in any Part be in Proportion to the Pleaſure, (as in the agreeable Objects of any other Senſe, it is, where tho' ſome Degree of it reſults to the whole Man, yet ſomething remains peculiar to the Senſe of which it is an Object) then the Instruments of Generation, by being moſt relaxed, will be alſo moſt fitted on that Account for the Reception of morbiſick Matter.

Hence the Genital Parts ſhould always ſuffer firſt, and amorous Men ſoonest.

And

And if virulent Matter, thus externally lodged, can act like Cantharides, and produce a *Chancre*, *Chordee*, or *Phymosis*, then I believe we may also, without any repugnancy to Reason, think this outward Application of it in Coition sufficient to produce a *Gonorrhœa*: The Difficulty against it being only how this Taint can be transmitted hence to the *Prostate*, which will not be so hard to Imagine, if we consider what has been already said of the Power impelling, and the Aptitude to receive. We find all Parts of the Body Porous, and by many Experiments receptive of any proper Matter incumbent on them, conveying and mixing a Portion with the Humours of the Body, as in Bathing, &c.

In all Translations of Tumours, whether by Revulsion or Derivation, this Sympathy and Communication of Parts is evident, and particularly in the present Case, where, on an improper handling, the Virulency will revert into the Blood, and produce all the Symptoms of a *Pox*, and indeed all outward Applications to any Malady deeper than the Skin (without this) would be impertinent: Why then should it be thought so extraordinary for infectious Matter arm'd with
other

other Properties than bare Fluidity, to affect these Glandules at so small a Distance? Since it must be acknowledged the several Parts of a Member have a much easier Communication with themselves than with the whole, as we often see in the quick and ready Translation of a *Gonorrhœa* to the Groin and Testicles, & *Vice Versa*.

The only remaining Objection to this Transmission by the Pores is, that the greatest Corrosions at the *Glans* and *Præputium* are rarely attended with a *Gonorrhœa*, whereas were such Corrosions thus effected, as it would be an Argument of a stronger Infection, and the Corrosiveness of that Venereal Matter to be greater, it should as seldom miss. This seems to be from the Contraction, Pains and Swelling that attend those Ulcers, whereby the Passages to the *Prostata* are straitned and obstructed; but a slighter Degree, creating no such Impediments, easily passes, and is sufficient to propel that Humour from the Glands which in a less Proportion is their Nature and Office. From hence we may learn a *Gonorrhœa* to be the mildest Species of Infection.

If

If any one should yet object and think the *Mucous Glands* of the *Urethra* more easily reached than the *Prostatae*, and so to be the *Seat* of a *Gonorrhœa*: I shall no further insist, but only remark to the Favourers of such an Opinion, That a Running is not produced by an Ulceration or Corrosion of the *Ostiolæ* of the Glands terminating there, for such would be an irreparable Loss, and is the very Cause of some *Gleets*, being incurable; but it is rather from the Constituting Vessels of those Glands being rendred weak and flaccid, that were before vigorous and elastick, parting easily (for that reason) with their Contents.

From the whole of this Explication we may see a Reason for that Custom in many Foreign Countries of washing the Privities well after Coition, (to wit) that they find it preventive of Infection, and perhaps *Circumcision* was not instituted by that renowned Law-giver *Moses*, or the Impostor *Mahomet*, nor practised by Ancienter Nations, without a View to the Cleanliness of this Part, and Prevention of foul and loathsome Distempers.

Those who account for a *Gonorrhœa* thus, do not say a *Disuria* is from an *Excoriation in the Urethra*, but that the Sharp-
ness

ness of the Infection thinning and carrying off the *Mucus* from the Membrane that lines it, is made more sensible of the *pungent Salts* of *Urine* passing through; which they would confirm by the Nature of *Patients Complaints*, who don't speak of the *Heat of Water* as a *Pain confin'd to one particular Spot of the Passage*, but diffused, and seems an equal *Vellication of the whole Membrane*.

I come now to the second and most useful Part;

The Cure of this Distemper: And First its Description.

A *Virulent Gonorrhœa* or *CLAP*, is the Emission of infectious Matter from the corroded *Glandula Prostate*, or those of the *Urethra*, accompanied with a *DISURIA*; or in other Words, the involuntary Flowing of Matter through the *Urethra*, with *Pain*, *Inflammation* and *Heat of Urine*; These are its *Pathognomick Signs*, and the Degree they are in, with Respect to Consistence and Colour in the *Running* (as *Yellow*, *Green*, or the like) or *Pain in Water*, are what we may take the Measure of *Virulency* from, and will be found more or less in different
Sub-

Subjects, according to the Malignity of the infected Person, and Constitution of the Receiver.

A *Disuria* is a Necessary Consequence of the *Running*, it being a Pain from the *Acriminious Salts* of Urine wasting thro' the Parts which that has excoriated.

The Cure I shall lay down under these two Intentions :

First, To conquer and carry off the Malignancy, and

Secondly, To heal and strengthen the Debilitated Parts.

Mercury only is able to answer our first Intention, and effectually to subdue the Poison of this Distemper : The Reason why it has a Power beyond other Medicines for this purpose, is its *Gravity*, and because its constituent Parts are extreme small, smooth and sphaerical : The latter Qualification fits them for an admittance into the smallest Passages (even those almost indiscernible ones of the Glands) and its weight breaks all Coagulations, and fits the Morbifick Matter for natural Secretions. And whatever flights some may put on this common Road of proceeding; yet, till better convinced in the Vertues of the several applauded *Specificks* that have appeared abroad in the World, I

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take

take leave to defend it, as a *Safe Practice* : For altho' a tedious, or an ill Cure, may now and then happen, it is not justly so much a Charge on the Medicine, as the Method ; when we leave off too soon, or continue it with Purges too long, a Practice equally Mischievous. But more of this by and by.

I am surprized, that every body, by their Practice, should allow *Mercury* to be the only Foundation and Retreat for Cure, in the last and stubbornest Stage of this Distemper, a *Pox*, and yet deny its Virtues in a milder Season. It must be confessed, there are too often seen many ill Effects from this Mineral ; and on a serious Reflection, I cannot but think, most of those deplorable Objects found in Hospitals, or elsewhere, whose ruined Constitutions are attributed to the *Lues*, to be with more Truth and Justice, ascribed to *Mercury* ; but then this is not the *Use*, but *Abuse* of it ; an unskilful Management often precipitating Patients, (and that in a short time) into such miserable Circumstances, as the Distemper, left to it self, could not in Years (if ever) have produc'd : From this Prepossession many take a handle to recommend their

infallible *Nostrums*, which when good for any thing still have this for their Basis.

The Ingenuity of making *Mercury Specific*, will lie in the Measure and Manner of Administration ; that it suit such Degrees of Infection, and such Constitutions ; a Point wherein one Man will excel another, according to their different Capacities, and Opportunities of Experiment : All other ways are supported by nothing but a *Brass Front*. The many successful Attempts of those who publickly invite Men to *Safe and Speedy Cures*, have pretty well exposed their Credit; and People see it to be nothing but a Competition in Cunning, who shall betray with most success, without the least Candour, or regard to the Promises they make : nor is it a small Disparagement to *Arcana's* here, that they are generally lodg'd with the Illiterate. I shall further strengthen this Argument for *Mercury*, in Opposition to other Specifics, by a short Excursion on the *Practical Scheme* ; because it has made the loudest Noise of late, and has been Famous, if not for attracting Poison, yet for attracting the Pence, *Populus vult decipi*.

A Compounded Medicine, as is the *Practical Scheme's*, tho' it should seldom

miss the Ends it is giv'n for, and so be said to act Electively, yet by being Compounded, is properly and significatively ranked under the Name of an *Arcanum*; which the Elder Brethren have chosen with Judgment, the Term of *Specifick* being usually apply'd to single Natural Bodies, such as he has mention'd (p. 12.) And tho' they may be diversly mix'd for conveying and using them with advantage, yet the Term is retained singly to that Body which is said to be *Specifical*: As for instance, in the *Cortex*; whatever Form or Vehicle we give it in, there is nothing but it self has any Claim to the Title: Therefore making the Vertue of his Composition to be the *Joynt Force and Result of all*, (p. 15.) is not only a Misapplication of it, but a Confession, that this *Specificality* lieth in none of them singly; or if it does, 'tis as yet a hidden thing to him. For he goes on, and tells ye (p. 12. 13, 16. & *Certificat.* p. 22.) *Their United Force, like a Loadstone, draws the Contagion to it, and exactly hits the different Constitutions of any Age, and that from the Recency of the Dissemper, to their being in a deplorable State.* And for further Proofs of these Absurdities, he says (p. 14.) *Persons after having taken the Specifick, will void*
large

large quantities of nasty corrupted stinking Water, of such an unsufferable Stench, they will not be able to bear the smell; and give but any Dog (that will take it) a Quart of this Urine, and he will in a little time break out with Pocky Sores; recoverable again with so small a Dose of the Specifick as contains to the bigness of a Pea, whsch will discharge it in such stinking corrupted Urine, as the Person's was who made it. A plain Confession it was the Effect of the Medicine, yet serves him for a Conviction of the great Power of this Remedy: And indeed, granting the Relations true, it must be allow'd (as was the Gamboze the poor Weavers took) to be of Stupendious Efficacy (p. 14.)

I shall not wrong this Gentleman, I believe, in suppposing his Scheme to be (like other shorter Schemes that are daily thrust into our Hands) for drawing in of Customers; he differs only in having alter'd their Concise way of Writing, and recommending in many Words what they have done Compendiously. The admirable Vertues of their Incomparable Never-failing Anti-venereal P I L L. Through a great part of his Book he insinuates to his Readers such astonishing Performances from the Specifick, as come but little short

short of Infallibility : *It is a Cure* (says he) (p. 21.) *for Nineteen in Twenty.* A very small Exception, yet serves a double End, being both *Good News to the Afflicted* (*Title of a Quack Bill*) and a Salvo for Mis-carriages : For should the Reverse of this be, and the Uncur'd 19 in 20, they might every one singly lament themselves and be with them as the unhappy excepted Person, and their Certificates must be wanting, because like his Cures, it would not be allowable to publish their Names and Abodes. And indeed, he that gives out a Bill of Promises on this Head, is much more safe from Detection and Reproach than any other ; because, to contest the thing is taking a publick Shame, and may be one Reason the Infallibility of a Cure is oftner and more confidently asserted here than in any other Case. The Certificates publish'd on these Occasions, (to confirm the Unbelieving) are few enough to be a concerted Cheat ; and if real, is only a cunning in common with the Fraternity.

*The Pictures which escape they wisely keep,
But HIDE all those that perish in the Deep.*

Mrs.

Mrs. *Avery's* Case (poor Gentlewoman) (p. 22. *the Certificate*) may be granted very bad, and the Cure as Extraordinary ; yet to shew the World something of a Parallel, and that others Parts of it do not want for Wonders, I refer to the following Story, transcrib'd from the Patient's own Lips ; abbreviated and drawn into a Certificate, will run thus :

I T. H. of *havig been for many Months afflicted with a Swelling in my Belly, Gripings, great Pains in my Limbs, and in a weak and languishing Condition, for which I had been a long while under the Prescriptions of several eminent Physicians, but to such purpose, that I was reduced even to Death's Door : At last, in a Despondency of Mind, I betook my self to little Dr. Le F . . . at the upper end of Three C . . . Alley: On examining my Case, and what had been done for it, he shook his Head and said, His Brethren had very much mistook the Illness, or else they would not have bottom'd their Hopes on Medicine Internal or External ; That the Planets were more concern'd in this Affair, and had " United their selectest " Influences against me" : He bid me be cheery and confident in him, and only*
lend

lend him my Servant next Morning at Three o' Clock, with some of my Urine, to Epping Forest. *Knowing his Wisdom, I shew'd all the Tokens of a glad Compliance my weak State would permit, and begg'd him, as a Christian, to use his utmost Skill for my Recovery. He promis'd he would; and accordingly took my Man with him as appointed: At his Return he told me My Business was done: That I should have only one severe Fit of Gripes more, but be perfectly recover'd in a Week. After the Doctor had taken his Leave, my Curiosity led me to enquire of John, what had been done at the Forest, and he told me, all he knew was, that he had seen the Doctor bore several Holes in an old Oak, put my Water in them, and then fill'd them up with Trunnels again, muttering withal some Words inwardly which he could not understand. My Heart ak'd for the Success of this Mystical way of Application a whole day; but praised be God his Words had Truth to a Tittle: I had next day, or next but one, the expected Fit; and before the expiration of a Week (as he had foretold) walked about to Admiration.*

What may compleat the Author's Praises, and recommend the Cure to the Publick, is his taking but Twelve Guineas for it:

it: The Presents that were afterwards added (tho' very short of a Requitall) were, as I hope to be s----- forced on him.

To the Truth of all which Premisses, I freely, and without Fee, do certifie, this 20th, &c.

J. T.

But to return from this Digression, I begin the Cure with a strict Regulation in Living, particularly an Abstinence from spirituous Liquor and salt Food, and prescribe directly a *Mercurial Bolus*.

R Mer. Dul. gr. xij. Conf. Ros. q. s. f. bolus hora somni sumend. purging it off next Morning with an Infusion of Senna. After the first or second time, I increase the Mercury in the Bolus, and give stronger Catharticks.

R Pil. ex duobus ʒj. rez Jalap. Bals. Peruv. ana gr. ij. Calomel. gr. vj. fiat Pil. No. v. mane vorandus.

Vel, R Pil. Cochia ʒi. Calomel. gr. x. Ol. Junip. gr. iij. f. Pil. deaurand.

Vel, R Eleet. Lenitiv. ʒij. Mer. dul. gr. x. rez Scammon. Jalap. an. gr. iv. Ol. Carui g. ij. M. Constantly administering, at the end of their Operation, a Paregorick Draught.

P U R G E S are given after *Mercurials* (I believe) not so much from a Suppositi-

On that their Vertues immediately reach the Part affected, and subdue the Poison directly, as from a distant View of altering the Habit of Body, and carrying off those vicious Humours that would else probably take their Course that way, and heighten the Fury : This Opinion is founded in Practice ; where nothing is commoner than from two Men infected by the same Woman, to see the one cur'd in a few Days, when the other perhaps requires Months ; which can be from nothing sooner than their different Habits.

Purges are design'd likewise to prevent any ill Effect from too great a quantity of *Mercury* remaining at once in the Body.

This may suffice for their Defence in general. There remains another material Consideration in the Use of them, and that respects the frequency of their Repetition. And rightly to understand a Proportion in this, we are to consider, that as the Malignancy of a *Gonorrhœa*, Nature her self, in good Constitutions, would run off in a due Quantity of time ; and that our Administrations are but her Assistants thereto : The Faults may be equal, in leaving them off too soon, or continuing them too long ; by the former the Infection is not conquer'd, and by the latter the

the Constitution is enervated, and Nature's Efforts weakned instead of being assisted : In consequence of this I repeat the *Mercurial Bolus*, and purge no oftner than Reason tells me their Strength will admit, without a *Hypercatharsis*, Fainting or Loathings (which is with some every other Day, with others twice a Week, or less;) and in the Intermiſſions give largely of the following *Apozems* or *Emulſions*.

℞ *Sem.* 4. *frig.* ℥i. *aq. Ment.* ſ. ℥ij. *Sal Tartar* ℥j. *fiat Emulſio Sacchar. candid. ad gratiam edulcorand.*

℞ *Amygdal. dul.* No. xij *Sem.* *Papav* ℥iſ. *Contundantur & ſenſim affunde aq. Plantag. vel decoct. Hord.* ℥ij. *Syr. Althæ* ℥j. *f. Emulſio*

℞ *Decoct. Pectoral.* ℥ij. *Spir. Nitri dul.* g. xxx. *f. Apozema.*

℞ *Sal Prunel. Sacchar. candid. p. & M. f. Pulvis ſumat ad quantitatem Scrupuli in Cereviſia tepid. ter in die.*

As theſe, or other Forms of *Diureticks*, are ſuppos'd to eaſe the Heat of Water by increaſing the Quantity, and ſo diluting the Salts ; ſo, to this end ſuch an Injection may be ſerviceable alſo as is ſoft, and can leave ſomething of a Mucilaginous Subſtance to lubricate and defend the *Urethra*.

Solvatur G. Tragacanth. vel Arab. vel Ichthiocol. in sero. Lactis, Colatura tepide injic.

While we are continuing the use of these, it will be proper to weigh with our selves, what are the Signs of our first Intention being answer'd, and sufficiently authorize us to leave them off: For there is no doubt a Period, which the Skilful discern, wherein a Change for Healing Balsamick Medicines is necessary and required, and which as we come short off, or exceed, may be either way pernicious: For, First, If (while the Signs of Malignancy abide) too sudden a Check be given to the Running, either by the unseasonable use of Astringents, or too quick and strong purging in the beginning, which turns to the same; then it will either revert and taint the whole Mass of Blood, or produce by a nearer Translation acute Pain, Tumour, and Inflammation of the Groin or Testicles; which may prove of as unhappy Consequence; particularly in the last the Pains are agonizing, and attended with *Fever*, *Syncope* and *Nausea*, and the Membrane wanting Fat, never without danger of Corruption and Gangrene.

Again: If, on the other side, the proper Season is miss'd of doing it, and there

is too cautious and long an adherence to *Mercurials*, or irritating Medicines, whether Catharticks or Diureticks, the Running goes on without end, and at last brings an irrecoverable Laxity on the Parts, converting a *Venereal* to a troublesome *Seminal Gleet*. To avoid these Extremes, I take the proper Indications for such an Alteration to be Absence of Pain and Soreness about the Groin and Testicles, When the Distention of the Yard is gone off, When the Heat of Urine is considerably abated, and when the Running is of thick and equal Consistence, chang'd in Colour and lessen'd in Quantity; for as the contrary of these are what constitutes its Virulency, so their Remission must be Signs of Amendment, and a proper *Stadium* for changing the Method. It is not to be expected a Running should ever so intirely change as not to leave a Stain; which some do fillily imagine; no, it will be sufficient that there are considerable Alterations in the Respects abovemention'd; the better those appear, indeed, the safer shall we be in stopping it; and let the remaining Matter revert where it will (separate from Signs of Malignancy) it can be of no more hurt, than the drying of an Issue, or other simple or common Ulcer. The

The second Intention is, to dry up the Running, and heal and strengthen the debilitated Parts. The former part of this Intention I have compass'd sometimes (in *Athletick* Constitutions) by a single quick Purge; which shows, that a *Cathartick*, without any other Property than its stimulating Power increas'd, will turn Astringent, and dry up the Liquor of the Glands: But as Circumstances will prevent this from being the constant Effect of it, and that (like Mr. *Avery's* Case) it will be far from happening every Day, I shall select some of those Preparations I've most successfully experienced, and range them in their Order of Healing and Astringency, to sort with the better or worse appearance of the Indications above; and doubt not but a due Observance to the Season of their Administration, together with a thick glutinous Diet (which under this Intention should always be directed) will make them answer as effectually with others.

℞ *Sal Prunel.* ʒiij. *Pulv. Rhabarb.* ʒij. *Troch. de Agaric. Alhandal. an.* ʒij *Antim. Diaphoret.* CC ppt. *Mer. dul. bene levigat, rez Jalap. an.* ʒj. *Elect. Lenitiv.* ʒij. *Bals. Capivi q. s. sumat ad magnitud. Castaneæ omni Mane & Vespere.*

℞ *Pul.*

℞ Pul. Rhabarb. ℥ij. Sal Prunel. ℥j. Nucis
Mōſchat. ℥j. Balſ. Capiv. Peru. ana ℥jſſ. ſu-
mat omni mane ad duas vel tres Dejectiones
promovendas.

℞ Ichthyocoll. Albiff. ℥j. decoq. in aq. Font.
℥xij. Colaturæ adde aq. Roſar. ℥j. M. ſumat.
Coch. ij. (in lacte vaccino diſſolut.) quater in
die.

℞ Cortic. Peruv. ℥j. decoq. in aq. Font. q. ſ.
ad ℥viiij. Colatur. hujus ℥ij. PP ℥i. aq. Cinam
℥j. M. f. hauſt. 8va quaque hora ſumend.

℞ Terebinth. Venet. ℥ſ. Vitill. ovi ſjr. Balſ.
℥j. M. è Cyatho vin. alb. ſumend.

℞ Bol. Arm. ℥j. Balſ. Capiv. ℥iiij. capiat
un. ſemis quotidie, ſemel vel bis alvos promo-
vet.

℞ Bol. Arm. ſang. Dracon. Terr. ſigillat.
Pul. Rhabarb. tort. an. p a Tereb. Venet. q. ſ.
f. Pil. mediocres ſumat quinque bis in die.

℞ Pil. Cretacæ B. eodem modo ſumend.

℞ Decoct. Guaiac. ſæpe ſumat hauſt. in
qua inſtillat g. xx. Tinct. Guaiac. vel Tinct.
ex Balſ. Peruv. Gilead, &c.

℞ Sacch. Saturn. Vitriol. R. an. ℥ſ. diſſo-
lut. in aq. Ferrariæ ℥iſſ. & filtretur pro inje-
ctione.

℞ Aq. Plantag. ℥vj. Tinct. Myrræ ℥j. vel
Tinct. Veneris ℥iſſ. tepide injicitur.

To theſe we may add the uſe of the
Cold-Bath; it gives a Contraction and
Tenuity

Tensity to the Fibres in general, and therefore must close the Orifices of these Ducts in particular.

§ III.

THE other Symptoms of *Virulency* which Denominate a Person Clapp'd, and that as well without as with a *Gonorrhœa*, are the *Chordee*, *Phymosis*, *Paraphymosis*, *Chancre* and *Bubo*. These I chuse to speak of separately in their Cures, because they require (besides an Internal use of *Mercurials*) Local Applications.

A *Chordee* is a painful Contraction of the *Frenum* in Erection, caused from an Inflammation of that Membrane, which on that account being thicker, is consequently shorter, and must excite a Pain when the Erection of the *Penis* stretches it.

Dr. Cockburn distinguishes another Chording Pain, arising from a Sore or Ulcer in the *Urethra*, as often as it comes to be compress'd by an Erection of the *Penis*, and infers from it, how far within the *Urethra* the Seat of a *Gonorrhœa* is: But against this I object,

That if an inflated *Penis* can so painfully compress this Ulcer on all sides, why should

Should not a greater Compression with the Hand do it without Erection.

Secondly, If a *Gonorrhæa* be an Ulcer in the *Urethra*, and the Chording Pain a Compression on that Ulcer, then they must be inseparable Companions, and no *Gonorrhæa* could be without it.

And, Thirdly, I have known the *Chordee* often continue after a Running has been stopp'd, which by this Allegation could not be true; supposing (as we reasonably may) that where there is no Running there is no Ulcer: The proper local Remedies to it are *Fotus's* of Milk wherein Lilly, Elder, or Marshmallow-Root has been boiled, and a little *Sacchar. Saturn.* added, or in their stead the *Cataplasma Resolvens*.

A *Phymosis*, is when the *Præputium* is difficult to bring backward: A *Paraphymosis*, when it choaks at the Neck of the *Penis*, and will not without pain or trouble be brought forward over the *Glans*: In some these are Natural Difficulties; but here, the effect of Tumour and Inflammation, as those are again of *Shankers*.

Shankers are Venereal Ulcers on the *Glans Præputium*, or *Frænum*: They are, with the *Phymosis* (as was observed in the beginning) occasioned when the Venereal Taint is lodged here, and does by its sharp Qualities, both coagulate those Liquors that lu-

bricate the Glands, and corrode the Fibres constituting them: The latter are *Shankers*, the former *Phymosis*; for a *Phymosis* is nothing but the effecting a Tumour on the *Glans* and *Præputium* at the same time.

To a *Phymosis* the Injections should be mild.

℞ *Aq. Plantag.* ℥ij. *Troch. alb. Rhas.* ℥j. *Mer. Potab. gr.* vi. to be thrown between the *Glans* and the Fore-skin with a Syringe, and retained there a little to wash and cleanse it; a Fomentation should be likewise used, and a Cataplasim of the Seeds with a little *Ol. Lilior.* in it; or this following:

℞ *Mica Panis m.* j. *Farin. Hord. pul. flor. Cham. ana m.* ss. *coquantur in lacte ad consistent.* *Cataplasim. finita Decoët. adde ol. Sambuc.* ℥j.

To a *Shanker* this Lotion. ℞ *Aq. Plant. Rosar. an.* ℥j. *Troch. alb. Rhas.* ℥ij. *in hac instillat g.* xv. *sequest. liquor.*

℞ *Mer. sublimat.* ℥ij. *dissolut. in sp. vin.* ℥ss. & *filtratur.* Or,

℞ *Aq. Calcis* ℥j. *Mer. sublimat* ℥j. *solut.* & *filtratur pro usu.*

℞ *Un. Basilic.* ℥j. *Præcipit. rub.* ℥j. *m. pro Unguento.*

Dr. Cockburn's Arcanum. ℞ *Hydrargyr. Tereb. Venet. an. P. Æ. F. Unguent.*

A Malign, or Venereal *Bubo* is dangerous to repel, and should, from the beginning, be assisted to Suppuration by Emplasticks, Cataplasms, Cupping, and the like: An Intention that will be found difficultly to succeed in most, and when compassed, without great care, will turn fistulous.

I have run over this Section with little more than placing some proper Prescriptions under the several Heads of *Chancre*, *Phymosis*, &c. avoiding any nicer Disquisition in the choice of them, or Season of their use, not because they are intirely void of Efficacy, but because I am satisfy'd neither they, or any other *Arcana* will alone answer the purpose: They are all short of the Eulogiums bestow'd on them; and if not impertinent to the Ends proposed, are yet vexatious and tedious. And since they are so, and have a greater tendency to a *Pox* than a *Gonorrhœa*, its expedient, and I think a very good Practice, presently to resort to *Turbith* for a Revulsion, or else by some other equivalent *Mercurials* to procure a Spitting; there is nothing these Symptoms better or sooner submit to; for as the Mouth grows sore, there follows a mitigation, the Matter is diverted, the *Shankers* heal, and the Parts suddenly regain their pristine Form and Tension.

Eight or ten Days continuance in a moderate Salivation will ordinarily suffice to vanquish them; but if the Distemper proves more deeply rooted, requiring one of stricter Confinement and Regimen, take the following Rules.

S E C T I O N IV.

TH E Symptons of the *Pox* are cuticular Eruptions, Blotches, Ulcers in the Throat and Palate, Nocturnal Pains of the Head, Shoulders and Shins, *Caries*, Night-Sweats, *Alopecia's*, falling off of the Nails, *Gummas*, Nodes, *Talpas*, Consumption and *Marasmus*.

How a Clap comes to end in such contumacious and intractable Symptoms, may be partly attributed to the Malignancy of the Original Infection, partly to the Predisposition, or ill Habit, whereby the Blood becomes more easily receptive of that Venom, but most often to an irregular Management of Cure, and use of *Specificks*: It exceeds my Design, as well as Capacity, to unriddle further the Nature of this Venom, in its several Appearances under that general Denomination of a *Pox*; having only intended here the short *History of*

a *Salivation*, by which the most of them are effectually to be removed.

A *Salivation* is dangerously undertaken with Aged People, with such as are lean, or dejected thro' Trouble or Misfortunes, or much emaciated ; but especially with those whose Lungs are any way distemper'd, that are Hectical, Phthysical and Consumptive, because, as this Habit is acquired by the Glandulous Secretions being increas'd, *Mercury* pejorates the Mischief, and the more so, if such Indisposition has proceeded from a former ill use of it. Dr. *Moulin* assures us from Experiments, that *Mercury* is very prejudicial to the Lungs, because they want that strong brisk Motion the Muscles have in other Parts, and by their lax and spongy Texture are extremely unfit for clearing themselves of so troublesome a Guest : This (*says he*) we daily see from Persons often flux'd ; who are afterwards observ'd to die of Consumptions, that will not give way to any Course of Medicine : To which likewise agrees many interspersed Places in Mr. *Martin's* Collection of *B A W D Y Letters*.

Mercury ordinarily Operates by a Flux thro' the Salival Glands, and by the parvity of its compounding Parts has a peculiar Aptitude thereto : The Benefits from it seem as much from the uninterrupted Con-

Continuance of its Operation, as any Specific Vertue in the *Mercury*; for the Blood has leifure by fuch a length of time as a *Salivation* takes up, to feparate its noxious and incongruous Parts, which are daily washed and fpewed out by the thin Liquors continually taken, and confequently the Remainder, after fuch a Defæcation, becomes more Homogeneous.

A *Salivation* is raifed by *Mercurials*, and that either Externally or Internally ufed; Two or three Purges always precede as preparative, and after that, if we intend it by Uñction, make up the following Ointment, and draw on a pair of Gloves and Stockings after the ufe of it, to keep the Linen and Bedcloaths clean.

℞ *Argent. Vivum* ℥iv. *Axuug. Porcin.* ℥xij.
M. An Ounce of this is to be ufed at a time for three days fucceffively, beginning the firft Illination on the Wrifts and Ancles only, leaving the Patient to chafe it with his Hands warm'd before the Fire; the fecond higher about the Joynts of the Knees and Elbows; and the third yet further up, but cautiously, becaufe the nearer you anoint to the *Abdomen*, the more likely the Body will be of being Laxative, and elude its proper Operation: If thefe Three In-unctions answer not the purpofe, we muft ftill repeat

repeat it, and help forward with a Bolus of *Turbith*.

This way by Unction I prefer, especially in weak Bodies, the other more certainly causing *Nausea*, Vomiting, Loosness, Faintness, and the like Accidents that interrupt a Regular Course of Proceeding, and give great uneasiness to a Patient : But since Unction has also its Faults, and is Offensive by its Smell and nastying the Cloths; since many also differ from me in this Preference, and give it to *Mercurials*, internally administered ; and lastly, since the Rules to prevent those Symptoms mentioned, will require more Attention in the Internal than External use of *Mercury* : I shall chuse to finish the Course in that Method, and for easier Apprehension, divide the Flux into a Beginning, a State, and a Declension.

In the Beginning, or First Attempts to raise a Flux, the only thing to be fear'd and guarded against, is a *Diarrhea*, which diverts the Operation of the *Mercury* from the Salival Glands : This we must take notice is prevented, or abates and goes off, in proportion as we can procure a Soreness in the Mouth and Jaws, and increase the Dribbling ; and therefore a very great Stress lies in the Manner and Method, as well as in the Administrations themselves, and in a good ordering the Patient as to Diet and Confinement.

First,

First, We have said two or three Purges are to precede : And the Reason of this is, that besides preparing the Body for succeeding *Mercurials*, they leave an Astringency that makes a Patient less apt to it after ; wherefore those of them that leave more than others of that Property behind best suit the Purpose ; as the

Potio Communis Purgativa Sydenham.

Secondly, In administering *Mercurials*, the *Bolus* should contain but a small Dose at first.

℞ *Mer. Dul. gr. x. Laud: L. gr. ij. Conf: Ros. q. s. fiat Bolus quaque nocte sumend.* And be increased two or three Grains every Repetition ; because large Doses of it in the beginning exert too much force in the *Primæ viæ*, and by the effect of their own Irritation, are pass'd off with their Contents ; whereas a small one, without giving such disturbance, leisurely intrudes it self, and in the Circulation arrives at and wounds the Salival Glands ; and when once it has obtain'd that Path, the subsequent Doses more easily follow, and suppress all Fears of a Diversion.

Thirdly, The Diet has its Use towards this End, and should be dry and astringent ; Rice, toasted Cheese, Yolks of Eggs in mull'd Whitewine, a Harts-horn-Drink, and Roast-meats, in general, are proper Food ;

Food ; minding to continue the most nourishing of them (the Meats) as long as we can to support the Strength thro' ; for in the Progress the Throat will be too sore to bear swallowing any thing but Liquids.

4. Another means conducive to it, will be guarding against Cold, which would by constipating the Pores make the Body loose *Cutis Densitas alvi Laxitas*.

These few Rules premis'd, we may go on with the *Mercurial Bolus's* for three or four Nights successively ; and if the Spitting in that time is found to have advanc'd but slowly, or the Body is laxative, alter it for one of *Turb. Min. à gr. v ad viij*, giving an Anodyne Draught at the end of its Operation.

Two or three *Turbith Bolus's* following the other, and increasing their Dose a Grain every Repetition (*a v ad viij*) may be expected to raise the Flux ; but Constitutions differ, and will be always an Exception to any stated number : I've known two Bolus's of *Calomel* raise a Salivation, and I have seen ~~the~~ *Ungt.* of Mercury by Uñction ineffectual. And here it may not be altogether unfit to mention the opposite Consequences that at some times proceed from the use of such a Quantity under different Symptoms : I have known nocturnal Pains of the Head and Shoulders that have been

removed by using such a quantity in Unction, tho' a Spitting never succeeded; and yet the same persisting when the Case has been Eruptions and stinking putrid Ulcers, has not only failed, as to the Salivation, but render'd the Case deplorable, by increasing their Number and Quantity of Matter, and consuming the Patient in colliquative Sweats: But in this, Reason and Experience must be our Guide; we must be able to know when the Mercury operates kindly, and whether the Patient's Constitution and Courage will support him thro' the Course; because now, if the Success is doubted, we may safely divert with Catharticks, which in the increase will be dangerous and impracticable; for my own part, I have seldom miss'd, more or less, of a Looseness in the raising a Salivation, and have persisted in the use of *Tarbitb*, when a Patient has had sixteen or eighteen Stools in a Night; but this has been in robust strong Bodies, and with this Caution, of giving a Respit for a Day or two, a *Harts-horn* Drink, and an *Anodyne* Draught.

If in the beginning of a Flux there should be a more than ordinary Pain in the Jaws and Mouth, and the *Saliva* running off bloody, we are not to be startled at it, they are the common Attendants of Mercury, and reach no further than the Parts immediately

diately affected ; a Day's Intermission from Mercurials will palliate, and in a great measure correct such Uneasinesses ; and to prevent their return and Aggravation, we may perfect the remainder of our Work by Uction, which does not affect with so much Pain as Mercury received by the Mouth does.

The Spittle at first is thick and clammy ; but as it increases in Quantity, grows thin and serous.

The S T A T E.

By the State of a Salivation, I mean all that time from a Patient's spitting about a Quart in 24 Hours, till its height and return to that Quantity again, which may include a Fortnight or more ; and during this, the exactest Regulation is required to promote the Flux, and avoid the danger of a Diversion. The beginning has less regard in Regimen, because the *Fauces* as yet suffer solid and nourishing Diet to pass and sustain Nature ; but in this their Soreness will admit of nothing but soft Liquors, as thin Broths and Gruels, which as they afford very little Nourishment, and that the Flux is still greater, a Faintness and Debility of necessity follows, that will constrain us to stricter Rules. The Patient must be altogether confin'd to the Bed ; he must be kept between the Blankets ; the Bed well
G 2 lin'd ;

lin'd; the Room close and warm, and a Julap *pro Languoribus*; the Head and Jaws should be covered also with Flannel, it repels the Effects of Cold, and is *Anodyne*.

Lastly, The Mouth should be frequently wash'd with the Liquids they drink, to cleanse and scour the Glands from Filth, that they may the more freely spue out their Contents; for this purpose therefore, and also for quenching the continual Thirst they will be under from a large Spitting, plenty of them must be in readiness; and they should be used warm, because Cold (in this general Ulceration of the Mouth) would create great Pain, check the Flux, and hazard the falling out of the Teeth. If there should be a necessity to check its Activity, *Flos Sulphuris* is the Medicine.

I account the Salivation well raised, if I can make it amount to about two Quarts in a Natural Day, and continue it so for eight or ten; but let the highest Quantity be what it will, whenever it lessens regularly, it signifies the Mercury to have spent its utmost Force and Power, and puts us on Considerations for our Third and last Branch, *The Recovery, or State of Declension*.

The DECLENSION.

A Flux that has advanced kindly to its Height, will as gradually decline, and in the close of it calls for Physick and Diet Drink, to expel the Remains and Recrements of the Mercury: They are not given till the Swelling and Soreness of the Jaws and Mouth are well abated, and the Draining little; some there will be while the Mouth continues sore, because, while the Fibres are excoriated, there will be a proportionable Vellication that will express the Juices within their Contact; and this might continue an inconvenient length. if the Humours were not diverted, and the Ulcerations dried in the end, by *Enema's*, *Catharticks* and *Gargles*.

℞ *Pil. Coch. Extr. Rud. ana gr. xv. rez Jalap. gr. iv, Ol. Carui gutt. ij. f. Pil. no. v. deaurand. ad sex vices repetand. alternis diebus.*

℞ *Fol. Senne Alex. ʒj. Zinzib. Sal Tartar. ana ʒj. Infunde tepide per noctem Colatur. ʒiij. adde Ol. Anisi gutt. j. Syr. Rosar. Solutiv. ʒvj. M.*

℞ *Manna opt. ʒj. dissolv. in ℥j. Aq. Strethamens. & superbib. ℥iij. Aquæ ejusdem singulis diebus.*

Aq.

℞ *Aq. Rosar. Plantag. ana* ℥iij. *Mell rosar.* ℥j. *Ol. Vit. gutt. vi. pro Gargarism. ad os eluendum.*

℞ *Fol. Plantag. Myrtill. in Aq. Hord. decoct. Colatur.* ℥viiij. *adde Syr. è Moris* ℥j. *M. F. Gargarism.*

Diet Drinks are appointed in conjunction with these, and may be continued six Weeks or two Months. They, together, subdue and carry off the Remnants of the Mercury, heal the Excoriations of the Mouth, and the Drinks, in particular, correct the Acidities of the Blood, and procure a gentle *Diaphoresis*, which very much avails in finishing a removal of all Pains.

℞ *Baccar. Junip.* ℥j. *Rad. Liquirit. Sem. Fenic. ana* ℥j. *infunde in Cerevisia tenuis conq. j. Colatura, adde Sp. Cochlear.* ℥ij. *pro usu.*

℞ *Lign. Sassaphras.* ℥iij. *Sarsæ, Guaiac. ana* ℥ij. *Rad. Liquir. Sem. Coriand. Anisi, ana* ℥j. *CC Raz. ℥iss. bulliant in ℔xvj. Aq. ad Cxij. Colatura bibat sepe in die.*

℞ *Thæa ex Sassaphras. bibat bis vel ter in die.*

℞ *Cerevisia è Lignis Doctoris Fuller.*

℞ *Decoct. Dieteticum Sydenham pro Potu commune.*

Suffu-

Suffumigation is sometimes substituted in room of the preceding Course; and is said to remove Pains, and dry up running Ulcers, or a *Caries*, better, and with more Dispatch.

In the Management of it, the Patient is stripped naked, and placed on a Stool with a Hole thro', under which the Fume is put: He is covered all over with Blankets, (except the Head, for fear of Suffocation) which are drawn pretty close about the Neck to keep the Fume in. When Sweat begins to come, he must be put to Bed, and there well covered for an Hour or two. and this repeated six, seven, or more Days, according to the Urgency of the Symptoms: The Fume is made always of *Cinnabar*.

℞ *Cinnabar. factitia* ℥iij. *Thuris, Styracis,*
ana ℥j. *M. F. Pulvis.*

℞ *Cinnabar. ℥ij. Styrac. Calamit. Nucis*
Moschat. ana ℥ij. *Benzoin* ℥ij. *cum Terebinth.*
F. Trochisci.

F I N I S.

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